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ABSTRACT

In this volume, ESEA Title I projects related to instructional practices and student cognitive performance, carried out in Philadelphia during 1971-1972, are evaluated. The six projects in this cluster are: Class for Mentally Retarded/Emotionally Distrubed Children; English as a Second Language; Improvement of Reading Skills (Reading Skills Centers; Shared Time, Part-Time, Primary Reading Skills Center); Individualized Education Center; Learning Dimensions; and Special Mathematics Project SEED. Related project reports that are included are: Computer-Assisted Instruction; English as a Second Language: Readiness; Instructional Management; Intensive Learning Center; Learning Centers; Pennsylvania Advancement School; Puerto Rican Orientation; Reading Specialist Training and Development for Inner-City Teachers; Summer Adventures in Learning; Summer Reading Readiness; Summer Special Education; Teaching Basic Reading Skills--A Systems Approach; Walnut Center; and Youth Serving Youth. Following a cluster overview, digests of the projects are provided in the following format: identification and description of the project (rationale, objectives, operational characteristics, previous evaluations); current evaluation procedure (scope and design, instruments, subjects, analysis of data); results; and conclusions. (For related documents, see TM 003 230-231, 233.) (DB)

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Volume III

Instructional Practices and Student Cognitive Performance

DEPARTMENT OF INSTRUCTIONAL SYSTEMS RESEARCH

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EVALUATION OF TITLE I

ESEA PROJECTS
1971-1972

VOLUME III

INSTRUCTIONAL PRACTICES AND STUDENT COGNITIVE PERFORMANCE

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SOURCES OF INFORMATION

The evaluation of the "Instructional Practices and Student Cognitive Performance" cluster and its component projects was designed, conducted, and reported by Kenneth W. Prusso, Research Associate, Walter A. McDaniel, Research Assistant, and Gloria Wesley, Research Assistant. Mr. McDaniel had primary responsibility for the evaluation of the Individualized Education Center. Mrs. Wesley had major responsibility for the evaluation of the Special Mathematics Project SEED. Both Mr. McDaniel and Mrs. Wesley contributed to the development and administration of tests and questionnaires used in the latter evaluation. The information reported for the projects, English as a Second Language Readiness, Puerto Rican Orientation, Summer Adventures in Learning, and Summer Reading Readiness was provided by Charles P. McLaughlin, Coordinator of Nonpublic School Projects; these data were analyzed and reported by Stephen H. Davidoff. The information reported for the Intensive Learning Center and the Pennsylvania Advancement School was collected and analyzed under the direction of Dr. Davidoff by Yaakov Kanovsky, Research Assistant, and Mrs. Wesley. The Walnut Center evaluation was conducted and reported by Bruce Yasgur, Research Associate. Thomas Clark reported on Computer Assisted Instruction and Teaching Basic Reading Skills--A Systems Approach. James Scheib evaluated the Learning Centers, and Robert Bayuk provided the report on Instructional Management. David W. Allen prepared reports on Summer Adventures in Learning and Summer Reading Readiness.

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INSTRUCTIONAL PRACTICES AND STUDENT COGNITIVE PERFORMANCE: CLUSTER OVERVIEW

Compensatory education is based upon the assumption that supplementary services can ameliorate low school achievement levels commonly found in target areas. An increase in scholastic achievement is intended to result from compensating pupils with (a) increased instructional time, (b) use of a variety of materials appropriate to the instructional settings which tend to encourage consideration of the individuals' difficulties. This last-mentioned aspect implies that a setting is established in which the teacher has a better opportunity to diagnose each pupil's current achievement level and to prescribe specific tasks which promote elimination of learning deficiencies. Projects considered in this cluster have established various instructional configurations which are intended to improve the interactions of teachers, pupils, and materials (as suggested by points a, b, and c above) and result in increased rates of educational improvement.

This is the second year in which designated projects have been examined under a cluster design. This design permits the evaluator to consider cognitive achievement as it relates to instructional practices rather than considering achievement only within the confines of the project itself.

As a result of the first year's cluster evaluation (1970-1971), three instructional models were identified according to characteristics of the organization of the classroom, the instructional interactions, and the curriculum materials in use. These three instructional models are as follows:

(1) Specialized Instructional Model. Small groups of pupils are identified as having similar educational needs and receive instruction simultaneously. The entire class (e.g., 6 to 10 children) receives the teacher's full attention, and because of its size, individual problems and achievements tend to determine the focus of instruction for the entire group. The teacher has the major responsibility for determining the direction of instruction, practice, and pacing. Classrooms in English as a Second Language and the Shared-Time reading project tend to exemplify this model.

(2) Semi-Individualized Model. A large class of pupils is organized into subgroups, to which are assigned tasks which may be performed by the subgroup or by individuals. Teachers have the major responsibility for determining the focus of instruction for each subgroup with which they are working. The pacing is determined by pupils within the subgroups. The individuals within the subgroups need not remain together, and may be reorganized from time to time as a function of changes in achievement of the group members. The nature of the materials available may vary from highly structured (programmed instruction) to minimally structured (a collection of objects, books, etc.). Classrooms in Learning Dimensions, the Individualized Education Center, and Reading Skills Centers tend to exemplify this model.

(3) Fully Individualized Model. Instruction occurs within a small-class setting via unique assignments to each pupil. Independent pupil work is minimal since each child is guided step by step by the teacher. The teacher evaluates and diagnoses each child's mastery at each level before the next learning experience is prescribed. The Class for Mentally Retarded-Emotionally Disturbed Children exemplifies this model.

The Semi-Individualized Model was concluded to possess the most useful characteristics for most teachers in that typical classes are large (rather than a group of eight to ten pupils). Within this model, the instructional advantages are that (a) teachers can modify the extent of control over pupils by varying their role (e.g., instructor, resource person) and by varying the nature of the instructional materials, (b) teachers may shift focus to either the homogeneous group or the individual for diagnostic and prescriptive functions, and (c) teachers may vary the degree to which pupils take part in the decision-making process (e.g., determining how fast to proceed, what materials to use, what goals to pursue, and at what time to perform various tasks).

Identification of these three models led to the expectation that relationships may be examined between the instructional practices as related to the models, and the rate of pupil achievement after exposure to the different instructional models.

Current Evaluation Procedure and Results

Before relationships between instructional models and pupil achievement should be examined on a large scale, it was decided to consider relationships found among instructional models, participation rates (time scheduled per week for the pupil), and rates of pupil progress. This decision also permitted further exploration of characteristics which might identify differences among the models and tended to permit the evaluators to detect additional factors regarding the relationships between instructional environments and pupil progress.

Two key questions designed to explore these relationships were asked. Conclusions were drawn from the data explored by these cluster questions and from the relevant data contained in the individual project reports.

Question 1. Do different instructional configurations yield differences in the pupils' rates of reading improvement?

The Reading Skills Centers project and the Shared-Time project were chosen for the comparison of improvement rates to determine whether different instructional configurations resulted in different pupil achievement rates.

Data presented in the Reading Skills Centers project report (later in this volume) suggested that the rates of improvement depended in part upon the pupils' initial reading level and in part upon their scheduled rates of participation in the project (i.e., how often a pupil was assigned to attend the project per week). To test this generalization, two groups of pupils in the Reading Skills Centers project were identified. Group I had the lower initial reading levels--ranging between Reading Readiness and Book 3^1. Group II had the higher initial reading levels--ranging between Book 3^2 and Book 6. The numbers of pupils within each group gaining zero, one, two, and three or more book levels were compared. The results confirmed that there was a significant difference between the two groups' rates of achievement favoring the children with the lower initial reading level (Group I). A greater proportion of Group I pupils than of Group II pupils improved by three or more book levels during the 1971-1972 school year. The Reading Skills Centers project had its most dramatic effect upon participants with the lowest initial reading ability.

Participants in the Shared-Time project were much like Group I (low) pupils in the Reading Skills Centers project when compared by their initial reading levels. Comparisons of improvement were made between Group I pupils and the Shared-Time pupils, and Group II pupils and the Shared-Time pupils. The results revealed that the rate of improvement for Group I pupils exceeded the rate of improvement for the Shared-Time pupils, and the rate of improvement for Group II pupils matched the rate of improvement for the Shared-Time pupils. It would therefore appear that projects which exemplify the Semi-Individualized Instructional Model tend to have a greater positive effect upon pupils with low initial achievement levels than do projects which exemplify the Specialized Instructional Model.

Question 2. Do different rates of participation in reading projects affect the rates of reading improvement?

Rates of improvement for pupils from the Reading Skills Centers project and their Shared-Time project were examined within project with respect to their weekly scheduled attendance rates. A positive relationship was found between the rate of scheduled attendance and improvement in reading for participants in the Shared-Time project, but not for participants in the Reading Skills Centers project. In the Shared-Time project, those pupils scheduled to attend most often had the higher rates of improvement, and those scheduled to attend less often had the lower rates of improvement. This relationship between scheduled attendance and rate of improvement suggests that the rate of scheduled attendance is not an important factor for every instructional model, but appears to be an important factor for the Specialized Instructional Model.

Conclusions

Question 1. Do different instructional configurations yield differences in pupils' rates of reading improvement?

It is clear that differences in instructional models, exemplified in different projects, contribute to differences in the rates of pupils' improvement. Also, differences in pupils' initial reading levels affect the rates of improvement even within the same instructional model. Pupils with low initial achievement scores seem to respond more favorably to a semi-individualized setting than to small-group settings, and they seem to respond more favorably to the semi-individualized setting than do pupils with higher initial achievement scores.

These findings imply that the instructional characteristics of projects may be tailored by the teacher to fit the specific educational needs of pupils in order to maximize the compensatory effects. In this case, the data suggest, for example, that the characteristics of the Reading Skills Centers serve best those pupils whose initial reading levels are below book level 3[2].

Question 2. Do different rates of participation in reading projects affect the rates of reading improvement?

The findings are not consistent across the two projects examined specifically to answer this question. It appears that when the degree of individualization is lower, the rate of progress is more dependent upon the amount of time pupils spend in the project each week. This suggests that the effect of instructional time on rate of improvement is dependent upon the given instructional model. Since English as a Second Language and the Shared-Time reading project both tend to exemplify the same instructional model (Specialized Instruction Model), and since in both projects time appeared to be an important factor in determining rate of achievement, it is reasonable to conclude that pupils participating in such projects should participate in them for as much scheduled time as can be arranged.

Conclusions from Individual Project Reports

Further questions which examined relationships between achievement and attendance rates were posed as indicated in the individual project reports which follow the cluster overview. A summary of key findings is presented in the following paragraphs.

The English as a Second Language (ESL) evaluation of 1970-1971 had revealed patterns of pupil achievement which seemed to vary according to whether the pupils were in a self-contained classroom or participated with the ESL teacher on a part-time basis. This year the data indicated that there were relatively more second-year ESL pupils continuing in the

project at sites where relatively fewer instructional hours per week were scheduled. It appeared that pupils who were more limited in the amount of participation during their first year of ESL tended to need the services of the project for a second year. Thus present variations in the ESL scheduling procedures have resulted in a number of pupils requiring two years to master the necessary language skills which they could have mastered in one year by participating in ESL more hours each week. The project must determine whether it can best attain its goal by concentrating services or by spacing out services. Since the current instructional configuration of ESL tends to exemplify the Specialized Instructional Model, data tend to support the generalization that the amount of time pupils receive instruction is directly related to the rate of their improvement; intensifying instruction would seem to be indicated for the attainment of ESL goals.

In the four projects in the Improvement of Reading Skills subcluster, pupils on the average tended to improve in reading at a rate of two or more book levels per year. However, there were differences in rates which appeared to be related to such factors as (a) differences among sites (schools), (b) differences in beginning-of-the-year reading levels, (c) differences in scheduled attendance rates, (d) type of school (public or nonpublic), and (e) differences in the instructional model utilized.

Data for the Individualized Education Center (IEC) suggested that intensive instruction in basic skills yielded greater rates of improvement during the first part of the year than during the second part of the year. Although these changes in rates are further confounded by changes in instructional practices, it seems that even the same intensity of instruction can effect different rates of improvement at different times during the instructional year.

Evaluation of the Learning Dimensions program (LDP) has provided information concerning differences in instructional practices. The practices summarized on the Descriptive Scale of Teaching Style (discussed in the LDP report) served to distinguish various instructional characteristics in terms of diagnostic procedures, time structure, involvement of pupils in decision making, and the use of grouping and assignments to groups.

Implications

The conclusions based upon the specific cluster questions and the related information from the individual project reports tend to suggest certain implications concerning each of the three models of instruction.

Within the Specialized Instructional Model it was found that amount of time spent in the project each week is an important factor related to the rate at which pupils improve in skills. Therefore, a maximization of time is desirable when this model of instruction is used.

Within the Semi-Individualized Model, initial achievement level of participants is an important factor related to the rate of improvement. Therefore, utilization of this model suggests that pupils' participation should be dependent upon an assessment of their needs.

Within the Fully Individualized Model, operational characteristics suggesting optimal use have not been identified. However, this model appears to be most appropriate for pupils with special educational needs, as it is used in the Class for Mentally Retarded-Emotionally Disturbed Children.

Further, within the first two models, the results of this year's evaluation tend to confirm that rates of improvement are also related to the time of the year, the skills of the teacher, and possibly other finer distinctions among the instructional practices. These kinds of influencing factors tend to confound the results of project evaluations and must be taken into consideration.

A more concentrated examination of the factors noted this year might begin to provide useful information for the school system and its decision makers. Through it one could begin to suggest what optimal relationships among the variables provide the highest compensating effects upon pupils with differing instructional needs. It is toward this end that the cluster evaluation will continue next year. Questions raised will explore the relationships among instructional practices, pupils' initial achievement levels, and rates of cognitive improvement. The actual instructional time, the diversity of materials, the diagnostic approach, the nature or kinds of prescriptions, and the organization of groups of pupils as classes or within classes are all aspects of the instructional models which should receive greater attention. Identification of these characteristics should lead to an important refinement in identification of instructional models, and should further prove useful in better characterizing projects. It is believed that this kind of information could be used to identify optimal educative conditions within the specific projects and across the instructional characteristics found within the cluster of projects.

CLASS FOR MENTALLY RETARDED-EMOTIONALLY DISTURBED CHILDREN
(PBRS #211-05-652)

This project report should be interpreted in the context of the "cluster overview" in earlier pages of this volume.

The Class for Mentally Retarded-Emotionally Disturbed Children (RE-ED) is a special class for children who are both retarded educable and emotionally disturbed. The class is located at the Drew School.

A full description of the project can be found in the School District's Evaluation of Title I ESEA Projects, 1970-1971.

Primary objectives of the RE-ED project are the following:

Objective 1. To reduce the degree of emotional disturbance exhibited by the RE-ED children in the classroom environment.

Objective 2. To facilitate the RE-ED children's readiness for learning.

Objective 3. To increase parental understanding of the problems of RE-ED children so that family members can better cope with the child's limitations.

Previous evaluations of the project have produced mixed results. In 1968, the results indicated that pupils had made greater overall improvements academically and socially than a comparison group. In 1969, general improvement was noted for pupils' social behavior, but no significant changes in I. Q. were noted over the academic year. In 1970, some pupils made progress in language skills at a rate equal to or greater than that of children of average intelligence. The whole class of pupils, however, did not make statistically significant improvements in their average Illinois Test of Psycholinguistic Abilities scores. In 1971, pupils' classroom behavior was found to be increasingly appropriate, over the year, to the educational tasks, and some gains were reported in reading and arithmetic.

Parent/guardian counseling sessions have been sporadic in the early years and became nonexistent in the 1970-1971 school year.

Current Evaluation Procedure

The focus of this year's evaluation was on the following questions:

1. How many parents or guardians participate in the counseling sessions of the project?

2. How often are counseling sessions held?

3. What is the rate of *pupils' successful* adjustment to more typical educational settings?

To answer the first two questions, reports were received each month from the consulting psychiatrist on the attendance at each counseling session.

To answer the third question, a review of all participants in the RE-ED project was made with the help of the consulting psychologist, school psychologist, and RE-ED teacher. The number of participants and their length of participation in the project were determined, and the number of participants placed by the project was compared with the number who left the project for other reasons.

Results

Data relevant to Question 1. How many parents or guardians participate in the counseling sessions of the project?

The average number of parents/guardians attending the counseling sessions was four. Considering that the number of pupils in the RE-ED class fluctuated between six and eight pupils, an average attendance of four parents/guardians represents better than half of the RE-ED pupils. For one meeting, only one parent attended, and the highest attendance was six.

Data relevant to Question 2. How often are counseling sessions held?

The advisory committee of the RE-ED project reaffirmed a strong commitment to the counseling sessions at its first meeting of the current year. However, no counseling sessions were held during the first half-year. A new consulting psychiatrist was hired and he instituted counseling sessions every other week starting February 3, 1972.

Data relevant to Question 3. What is the rate of pupils' successful adjustment to more typical educational settings?

An examination of the project's records showed that since January, 1968, twenty-two pupils have been admitted into the RE-ED class. Two pupils were admitted this year, and one pupil was removed from the project due to extreme and continued disruptive behavior. One was temporarily placed in another class at the Drew School on a trial basis, and has made a successful adjustment to that setting. Of the twenty pupils (other than those admitted this year) five remain in attendance, and the other fifteen pupils have been transferred from the class. The average time in attendance was one year and two months. Seven pupils left the project before they were placed by the advisory committee, and eight were

placed by the advisory committee in regular classrooms or special classes. The average time of attendance for "nonplaced" pupils was slightly less than one year. The average time of attendance for pupils placed in other settings was about one and one-half years. The present rate of successful placements of pupils is slightly more than one-half of those who have been involved.

Conclusions

Question 1. How many parents or guardians participate in the counseling sessions of the project?

More than half the parents/guardians have attended the sessions, some regularly and others sporadically. The average number of parents/guardians in attendance was four.

Question 2. How often are counseling sessions held?

Sessions were held every other week during the second half-year. Implementation of this component of the project appears to be a function of the consulting psychiatrist's interest instead of the parents'/guardians' interest.

Question 3. What is the rate of pupils' successful adjustment to more typical educational settings?

The rate at which the project has successfully placed pupils after accepting them to participate has been slightly greater than 50%. Average time of attendance has been one and one-half years in the project for that group.

ENGLISH AS A SECOND LANGUAGE
(PBRS #211-02-551)

This project report should be interpreted in the context of the "cluster overview" in earlier pages of this volume.

English as a Second Language (ESL) uses bilingual teachers to develop audiolingual English skills of Spanish-speaking pupils who have recently immigrated to Philadelphia. In contrast to the Title VII Bilingual Education project, ESL concentrates on audiolingual English skills but does not typically involve teaching Spanish (as a second language) to English-speaking pupils.

A full description of the project may be found in last year's report (Evaluation of Title I ESEA Projects, 1970-1971).

The project's objectives are the following:

Objective 1. To develop pupils' abilities to understand spoken English.

Objective 2. To develop pupils' abilities to speak English.

Objective 3. To develop pupils' abilities to read English.

Objective 4. To develop pupils' abilities to write English.

Objective 5. To develop and/or maintain the pupils' (and parents') appreciation and understanding of the Puerto Rican culture, the Spanish-speaking community's culture, and the English-speaking community's culture.

Previous evaluations have shown that pupils involved in the ESL project improve their audiolingual skills to a level significantly greater than their pretest levels. When pupils' rates of progress and attendance patterns in the ESL program were studied, it appeared that one had a direct bearing upon the other. The average progress made by pupils, regardless of their attendance rate, was approximately the same over the year. However, the phenomenon seems to suggest that maximum gains occurred for participants who were in self-contained classes about midway through the school year, while for participants who attended ESL classes part-time, progress was made at a slower rate causing them to reach their peak at the end of the school year.

Current Evaluation Procedure

Because of the consistency of the previous findings, the project director expressed a desire to find tests which would measure the broader aspects of the ESL curricula. Therefore, it was agreed that no testing would be conducted in order to review and reassess the testing procedures and the instruments used in previous evaluations.

In pursuit of this objective, an examination of the project's operation in different schools and of pupils' characteristics and involvement was initiated. Focal questions of this evaluation were these:

1. From what countries do ESL pupils come?

2. Can pupils read Spanish and/or English?

3. In general, how many pupils does an ESL teacher teach, what is the teacher/pupil ratio, and to what extent are second-year pupils participating in ESL?

To gather the information needed to answer these questions, a questionnaire was developed and administered to eleven ESL teachers who represented all grade levels. Responses were tabulated and reported in terms of frequencies or percentages.

Results

Data relevant to Question 1. From what countries do ESL pupils come?

Of the 645 pupils accounted for, 90% were born in Puerto Rico, 1½% were born in South America, ½% were born in Central America, none were born in Mexico, 8½% were born in the continental United States, and a fraction of one percent were born in other countries. The pupils born in the continental United States were reported to be in Grades 1-4.

Data relevant to Question 2. Can pupils read Spanish and/or English?

Teachers estimated whether "none," "some," or "most" of their pupils could read Spanish and/or English, but did not estimate their achievement levels. Junior and senior high school pupils were for the most part reported to have the ability to read Spanish. A lesser number were judged able to read English. Some elementary school pupils were judged as having the ability to read Spanish; and more were judged able to read English.

Data relevant to Question 3. In general, how many pupils does an ESL teacher teach, what is the teacher/pupil ratio, and to what extent are second-year pupils participating in ESL?

Responses to the questionnaire revealed that the number of pupils taught by a single teacher varied between schools. One ESL teacher reported 111 pupils participating in the ESL project. Another teacher who had a self-contained class taught nine to twenty pupils (this varied through the year).

The children were taught in groups which ranged from 30 in junior and senior high schools to six in elementary schools. The amount of instructional time for ESL pupils varied from one hour per week to 26 hours per week (in a self-contained classroom).

The number or second-year ESL pupils varied between zero to 68 per school. Of the seven elementary schools studied, there appeared to be an inverse relationship between the percentage of second-year pupils (N=112) and the amount of instructional time per week. Table 1 lists the hours spent per week and the percentage of second-year pupils.

TABLE 1

WEEKLY INSTRUCTION TIME AND SECOND-YEAR ESL PARTICIPATION AT SEVEN ELEMENTARY SCHOOLS

Average Hours per Week Scheduled Instruction	Percentage of ESL Pupils Who Were Second-year Participants
1	45%
2	19%
2½ (2 schools)	30%
4	14%
6½	0%
26	0%

Teachers estimated on the average that two pupils entered and left their ESL classes each month. Most of the pupils moved to or from Puerto Rico; some moved to or from neighboring schools.

Conclusions

Question 1. From what countries do ESL pupils come?

Most ESL participants come from Puerto Rico or are members of Puerto Rican families. Ninety percent of the participants were born in Puerto Rico, and 8½% were born in the continental United States.

Question 2. Can pupils read Spanish and/or English?

Most junior and senior high school ESL participants were reported as able to read Spanish and English. Some upper-level elementary school ESL pupils were reported as able to read English, and a lesser number were able to read Spanish.

Question 3. In general, how many pupils does an ESL teacher teach, what is the teacher/pupil ratio, and to what extent are second-year pupils participating in ESL?

Wide variations were discovered in the responses to these questions. The number of pupils taught per teacher ranged between 20 and 111. The number of pupils per class was about 25 at the junior and senior high school levels, and about 10 at the elementary school level. The actual ESL instructional time varied between one and seven hours per week. On the average, two pupils enter and leave the ESL project at each site every month.

These findings about the project give indications that a more effective testing program to measure the broader aspects of ESL curriculum would have to do the following:

1. Focus upon audiolingual skills at all grade levels;

2. Focus upon reading skills for elementary pupils in the second year of the project and for all junior high and senior high school participants;

3. Focus upon finer aspects of speaking and writing skills for elementary pupils in their second year of participation, and for junior and senior high school participants;

4. Focus upon both diagnostic and achievement aspects of pupils' skills.

Further, the minimum number of hours of instruction permitted should be reconsidered in light of the apparent inverse relationship between instructional time and percentage of second-year pupils.

IMPROVEMENT OF READING SKILLS

Four related projects are treated as a subcluster in this report: Improvement of Reading Skills: Reading Skills Centers (PBRS #211-02-666), Improvement of Reading Skills: Shared Time (PBRS #211-02-666B), Improvement of Reading Skills: Part-Time (PBRS #211-02-718), and Improvement of Reading Skills: Primary Reading Skills Center (PBRS #211-02-719). The last three are covered in separate appendices which follow the report on Reading Skills Centers. The entire report, including the appendices, should be interpreted in the context of the "cluster overview" in earlier pages of this volume.

IMPROVEMENT OF READING SKILLS: READING SKILLS CENTERS (PBRS #211-02-666)

The Project

Improvement of Reading Skills: Reading Skills Centers (RSC) is located in ten Reading Skills Centers in seven districts. It primarily serves underachieving readers who attend a Reading Skills Center from one to five times each week, depending upon the extent of their reading needs. The pupils receive intensive individualized instruction in basic reading skills and comprehension through multilevel, multimedia materials. The centers are also used as demonstration units for district staff development in reading.

Multimedia and multilevel materials are used to accommodate individual needs and interests. Pupils are rostered in the Skills Centers according to the severity of their reading deficiencies. Those with the greatest deficiencies attend at least three periods a week. Pupils whose original achievement was higher attend one or two times a week. As pupils' achievement improves, their attendance rate may be reduced. A full description of the operation of this project is found in the 1970-1971 Evaluation of Title I ESEA Projects. The primary objectives of the project include the following:

Objective 1. To improve pupils' word-attack skills.

Objective 2. To improve pupils' reading comprehension.

Objective 3. To provide staff development by the RSC teachers, for teachers in schools where the project is implemented, and for other reading teachers in their districts.

Previous evaluations of the project have shown that pupils with the most serious reading problems have been helped by the project, and that participants have shown greater reading improvement than nonparticipating pupils. The goal of improving reading comprehension at an average rate of two book levels per year was attained by many pupils with severe reading problems. The goal to raise 80% of the pupils' phonics skills to a mastery level was achieved over a three-year period.

Current Evaluation Procedure

This year's evaluation focused upon the following questions:

1. Is the amount of time that pupils are assigned to the centers related to the severity of their reading problems?

2. What percentages of the pupils gain less than, more than, and the same as two IRI reading-book levels?

3. What are the staff development activities for which the RSC teachers have taken responsibility?

Question 1. Is the amount of time that pupils are assigned to the centers related to the severity of their reading problems?

All available data were used to answer the question. Teachers reported both the number of pupils at each achievement level (Reading Readiness through Book 6) at the beginning of the year and their scheduled attendance rates. The data were then organized into four categories, and the percentage of pupils within each category was calculated.

Question 2. What percentages of the pupils gain less than, more than, and the same as two IRI reading book levels?

Pretest and posttest IRI test results were reported by teachers for all pupils who had participated in the project for the current school year. Changes in reading levels were calculated, and the percentages of pupils who gained zero, one book, two books, and three or more books were determined. The data were further subdivided to examine rates of improvement in relation to scheduled attendance rates.

Teachers were asked to select a sample of pupils who had participated for three years to provide evidence of participants' improvements in reading skills. Forty-six such pupils were identified, and their test scores were summarized.

Question 3. What are the staff development activities for which the RSC teachers have taken responsibility?

Teachers were asked to report their staff development activities for the school year. These were summarized as descriptive data to gain a better understanding of ways in which the project affects the teachers in the school and in the district.

Results

Data relevant to Question 1. Is the amount of time that pupils are assigned to the centers related to the severity of their reading problems?

The scheduled attendance for almost all pupils (N=1067) in each of the ten centers was collected. Using the beginning level as a criterion, two attendance rates were established: high and low. High rates of attendance were defined as 3, 4, or 5 times per week; low rates, once or twice a week. Pupils with the most serious reading needs were defined as those fourth-, fifth-, and sixth-grade pupils whose reading level was from Reading Readiness to Book 3[1]. Pupils with a less serious reading need were defined as those fourth-, fifth-, and sixth-grade pupils whose reading level was from Book 3[2] to Book 6. Table 1 shows the numbers and percentages of pupils within each of these categories.

TABLE 1

RELATIONSHIP BETWEEN RATE OF ATTENDANCE AND DEGREE OF READING NEED

Degree of Need	Number (and Percentage) of Pupils			
	Assigned to High Rate of Attendance		Assigned to Low Rate of Attendance	
Most Serious	746	(70%)	91	(9%)
Less Serious	99	(9%)	131	(12%)

Table 1 shows that 70% of the pupils attending the centers had the greatest reading needs and high scheduled attendance rates. Twelve percent of the pupils had a less serious reading need and were scheduled to attend at the low rates. Eighteen percent of the pupils were not scheduled in accordance with the seriousness of their reading needs;

however, in only 9% of the cases were the schedules inappropriate. These cases might act as a constraint upon the project's effectiveness. The effect of attendance rate upon achievement rate was examined in Question 2.

Data relevant to Question 2. What percentages of the pupils gain less than, more than, and the same as two IRI reading book levels?

The percentages of pupils who progressed at each of the three rates are summarized for each center in Table 2. The centers are ranked (from highest to lowest) according to the percentage of pupils who gained two or more book levels during the year.

The data revealed that more than half the participating pupils gained at a rate of two or more book levels during the current year.

A comparison of the rate of gain in book levels and the pupils' degree of need is shown in Table 3. Participants from four schools were not included in this analysis because of the uncertain reliability of the data, atypical operating procedures, or atypical pupil participants.

Table 3 shows that pupils with the greatest needs are making higher rates of gains than are pupils with the lesser need. Sixty-two percent of the pupils with the greatest need gained two or more book levels, as compared to 48% of the pupils with lesser needs.

Table 4 shows with the relationship of high and low scheduled rates of attendance to the rates of gain for pupils with the greatest need.

The percentage distributions over the rates of achievement are similar for both groups, and even tend to favor the pupils who attend at the lower rate. No special significance should be attached to the higher percentage of pupils achieving at a rate of three or more book levels for the group scheduled to attend at the lower rate. Two reasons appear to account for this difference. First, the disparity in numbers: 462 for the high rate, 93 for the low. In the smaller group, a few cases would have a greater effect on the percentage. Second, the median for both groups was Book 2^1, but no pupils in the low rate group were reading at a Reading Readiness level at the beginning of the year.

A summary of three years' data for 46 pupils selected from four centers is provided in Tables 5 and 6.

TABLE 2

PERCENTAGES OF PUPILS IN EACH CENTER WHO GAINED ONE OR LESS, TWO, AND THREE OR MORE READING LEVELS DURING THE 1971-1972 SCHOOL YEAR

Center	N	Book Levels Gained		
		1 (or less)	2	3 (or more)
A	93	25%	27%	48%
B	126	28%	37%	35%
C	128	33%	43%	24%
D	89*	37%	19%	44%
E	213	48%	41%	11%
F	111	54%	25%	21%
G	81	56%	28%	16%
H	72	64%	18%	18%
I	85	64%	28%	8%
J	104	70%	25%	5%
All Centers	1102*	47%	31%	22%

*The teacher in School D questioned the reliability of the pretest IRI scores. Although these results were used to develop the data displayed here, they were not analyzed further.

TABLE 3

PERCENTAGE OF PUPILS MAKING DIFFERENT RATES OF GAIN IN RELATION TO THEIR DEGREE OF NEED

September 1971 Reading Level	Number of Pupils	Book Levels Gained		
		1 (or less)	2	3 (or more)
Greatest Need (Readiness-Book 3^1)	555	38%	33%	29%
Lesser Need (Book 3^2-Book 6)	184	52%	38%	10%

TABLE 4

PERCENTAGE OF PUPILS WITH THE GREATEST NEED MAKING DIFFERENT RATES OF GAIN IN RELATION TO THEIR SCHEDULED ATTENDANCE RATE

Scheduled Attend. Rate (Times/Week)	Sept. 1971 Reading Level	No. of Pupils	Book Levels Gained		
			1 (or less)	2	3 (or more)
High (4.3)	RR-3^1 (Median=2^1)	462	38%	34%	28%
Low (2.1)	PP-3^1 (Median=2^1)	93	38%	28%	34%

The data in Table 5 show that the median pupil began at the Primer level and at the end of three years read at the Book 4 level. The average rate of gain of the median was two book levels per year. For example, the median shifted during the pupils' fifth-grade experience from Book 2^1 to Book 2^2 to Book 3^1, which is an improvement of two book levels.

The data in Table 6 show that pupils improved every year on the average, but they did not improve during the summer vacations. Whereas only 3% of the pupils had achieved mastery of phonics at the beginning of their third-grade experience, 78% had achieved mastery by the end of their sixth-grade experience. Similar trends in the data were observed the previous year for a three-year period of time (Evaluation of Title I ESEA Projects, 1970-1971). Pupils who remain as participants in the project for three years tend to be those with the greatest needs.

TABLE 5

MEDIAN IRI BOOK-LEVEL SCORES OF A SAMPLE OF RSC PUPILS OVER THREE YEARS

Center	No. of Pupils	Fourth Grade		Fifth Grade		Sixth Grade	
		Pre	Post	Pre	Post	Pre	Post
F	10	P	1	1	2^1	2^1	3^1
E	12	P	2^1	2^1	3^1	3^1	4
B	10	2^1	3^1	3^1	4	3^2	5
C	14	2^1	3^1	3^1	4	4	5
All	46	P	2^1	2^1	3^1	3^1	4

TABLE 6

AVERAGE BOTEL SCORES AND PERCENTAGES OF PUPILS ACHIEVING PHONICS MASTERY IN A SAMPLE OF 46 RSC PUPILS OVER A THREE-YEAR PERIOD

Item	Fourth Grade		Fifth Grade		Sixth Grade	
	Pre	Post	Pre	Post	Pre	Post
Average Botel Score (Number Right)	30.5	42.5	41.5	47.5	45.5	55.3
Percentage of Pupils Achieving Mastery (Score 50 or more)	3%	19%	35%	59%	52%	78%

Data relevant to Question 3. What are the staff development activities for which the RSC teachers have taken responsibility?

Nine of ten teachers reported on their staff development activities outside their managerial and teaching duties in the centers. Not all teachers reported every activity, and the number of teachers reporting each activity is noted after each descriptive statement.

All the teachers reported that they carried out staff development activities with their school's classroom teachers in terms of the following:

1. Demonstrate and/or discuss curriculum materials and their use at faculty meetings or when teacher brings class in for special session. (9)

2. Keep teachers informed of pupils' progress. (9)

3. Demonstrate and/or discuss test administration and interpretation. (9)

4. Demonstrate and/or discuss how to conduct individualized reading instruction with appropriate materials. (7)

5. Discuss specific reading problems and strategies for dealing with those problems in the classroom with individual teachers at their request. (7)

6. Demonstrate special equipment and its use at faculty meetings or when teacher brings class in for special session. (3)

Most of the teachers were involved in administrative or consulting tasks at their schools in the following ways:

1. Lending equipment or curriculum materials to teachers. (7)

2. Helping teachers understand how to improve and implement the district reading plans. (5)

3. Providing information at faculty meetings via workshops or special speakers. (5)

4. Helping teachers develop reading plans for school; discussing problems and coordinating strategies for dealing with them (as a member of the school's reading team). (3)

5. Coordinating testing programs. (1)

Three teachers reported that they were members of their district's reading committee, and they helped to develop and review reading plans.

Three teachers reported that they demonstrated the RSC organization, equipment, and curriculum materials to district reading teachers. Five reported that they carried out staff development activities for the district's reading teachers.

Most teachers reported that they demonstrated the RSC to parents, college teachers and students, and visitors from other districts, school systems, and states. Some had talked with Home and School Association members about RSC, and had trained some parent volunteers and classroom aides.

Conclusions

Question 1. Is the amount of time pupils are assigned to the centers related to the severity of their reading problems?

Most (i.e., 80%-90%) of the participants were scheduled to attend the centers in accordance with the project design. Pupils with the greatest needs attended the centers 3, 4, or 5 times per week, and pupils with the lesser needs attended 1 or 2 times per week.

Question 2. What percentages of the pupils gain less than, more than, and the same as two IRI reading book levels?

On the average, 47% of all the pupils progressed one book level or less, 31% progressed two book levels, and 22% progressed three or more book levels.

On the average, a higher percentage of pupils with the most severe reading problems progressed at a rate of two or more book levels than of pupils with less severe reading problems. The rate of progress for pupils with the greatest needs was the same for those groups who had either low or high scheduled attendance rates. Therefore, the different scheduled rates of attendance apparently did not serve as constraints upon achievement rates, and the achievement rates were apparently related to qualitative characteristics of the centers' operations rather than to quantitative exposure.

One could hypothesize that the teachers were able to moderate their services in a manner which compensated for the difference in scheduled attendance rates.

Data for three years verified findings from the previous year that pupils who remained in the project for three years progressed at a steady rate of two book levels per year on the average. Also, by the end of three years, 78% of the pupils (or approximately four out of every five) achieved mastery of phonics.

Question 3. What are the staff development activities for which the RSC teachers have taken responsibility?

The teachers generally provided staff development activities for their school's classroom teachers, volunteers, and aides. They also cooperated to provide staff development activities for their district's reading teachers. Some were involved in reading plan development at the school and/or district level. Demonstrating and/or providing equipment, curriculum materials, tests, or expertise was a typical focus of their activities. They also provided suggestions on how teachers might use materials and organize their classrooms for individualized reading instruction.

Evaluator's Comment

It is of interest to note that pupils in this project tend to progress at a steady rate during each academic year, and tend to maintain much of their achievement level over summer recesses. It is also of interest to note that the rate of achievement appears to be related more to the severity of reading problems than to rate of attendance. Finally, it is important to pose the question, "How can the achievement rates of the centers be raised to correspond to that rate reported for the highest-ranked RSC?" In future evaluations it might be important to focus upon the causes for these phenomena, and determine which factors are directly related to accelerated rates of achievement.

IMPROVEMENT OF READING SKILLS: SHARED TIME
(PBRS #211-02-666B)

This project report is related to the preceding report and should be interpreted in the context of both the subcluster comment, "Improvement of Reading Skills," and the "cluster overview" in earlier pages of this volume.

The "Shared Time" project serves eight pairs of public and nonpublic schools. The reading teacher is "shared" by a public school and the paired nonpublic school.

The rationale of the "Shared Time" project is similar to that of the Reading Skills Centers project. Objectives of the project include the following:

1. To improve pupils' reading comprehension.

2. To improve pupils' word-attack skills.

Public and parochial school pupils in grades 4, 5, and 6 share the instructional services of a reading teacher. Instruction is partially individualized through the use of multimedia and programmed materials.

Previous evaluations indicated that progress was made in reading comprehension and in word-attack skills. Last year's evaluation showed that 50% of the pupils gained about two and one-half book levels and 41% of the participants progressed from nonmastery to mastery of phonics skills between September and June.

Current Evaluation Procedure

The evaluation for 1971-1972 was focused on the question: What percentages of the participants have made progress at the rates of one (or less), two, and three (or more) book levels?

All pupils involved in the project for the greater part of the school year were included in the evaluation. Teachers were asked to report pretest and posttest IRI book levels for each pupil. From these reported scores, the numbers of pupils who gained at the specified rates were calculated. Those who attained less than one book level were considered as having made no positive gain. The data were further examined by type of school, grade, and beginning book level.

Results

Data relevant to the Question. What percentages of the participants have made progress at a rate of one (or less), two, and three (or more) book levels?

The eight pairs of schools were grouped according to their organizational structure (public, nonpublic) and ranked (from high to low) according to the percentage of pupils who gained by two or more book levels during the current year. Table 1 summarizes the rates of progress for the eight public schools.

TABLE 1

PERCENTAGE OF PUPILS MAKING DIFFERENT GAINS
FOR EACH PARTICIPATING PUBLIC SCHOOL

School	No. of Pupils	Book Levels Gained		
		1 (or less)	2	3 (or more)
A	42	22%	30%	48%
B	24	33%	42%	25%
C	61	39%	35%	26%
D	70	50%	44%	6%
E	36	50%	45%	5%
F	88	69%	21%	10%
G	69	69%	22%	9%
H	43	74%	7%	19%
Total	433	53%	29%	18%

On the average, about half (47%) of the public school participants progressed at a rate of two or more book levels per year; 18% gained three or more levels.

Table 2 summarizes the rates of progress for the eight nonpublic schools. The schools are ranked (from high to low) according to the percentage of pupils who gained at a rate of two or more book levels during the current year.

Almost two-thirds (64%) of the nonpublic school participants progressed at a rate of two or more book levels per year; 24% gained three or more.

TABLE 2

PERCENTAGE OF PUPILS MAKING DIFFERENT GAINS
FOR EACH PARTICIPATING NONPUBLIC SCHOOL

School*	No. of Pupils	Book Levels Gained		
		1 (or less)	2	3 (or more)
B[1]	34	15%	59%	26%
C[1]	19	21%	37%	42%
E[1]	40	23%	47%	30%
D[1]	47	26%	40%	34%
A[1]	22	27%	27%	46%
F[1]	65	41%	44%	15%
H[1]	44	57%	25%	18%
G[1]	36	58%	25%	17%
Total	307	36%	40%	24%

*The alphabetical designations correspond to the public schools in Table 1.

To determine whether the percentage of pupils progressing two or more book levels was related to their scheduled attendance rate, the percentages were computed for each scheduled attendance rate. Table 3 summarizes these percentages for the public and the nonpublic schools.

TABLE 3

PERCENTAGE OF PUPILS MAKING GAINS IN RELATION TO THEIR SCHEDULED ATTENDANCE RATES FOR PUBLIC AND NONPUBLIC SCHOOL PARTICIPANTS

Scheduled Rate of Attendance (Times/week)	No. of Pupils*	Book Levels Gained	
		1 (or less)	2 (or more)
Public Schools	(429)		
5 times	163	36%	64%
4 times	38	37%	63%
3 times	137	66%	34%
2 times	91	72%	28%
Nonpublic Schools	(301)		
5 times	143	22%	78%
3 times	91	40%	60%
2 times	67	60%	40%

*The total number of pupils reported here is slightly less than the the total reported in Tables 1 and 2. Some pupils attended only once a week, but this number was too small to provide meaningful data for the comparisons.

There appears to be a direct relationship between the scheduled rate of attendance and the rate of pupil progress through reading levels as measured by the IRI. Although there appears to be a trend between the number of pupils and scheduled visits, present information cannot confirm the trend.

Conclusions

Question. What percentages of the participants have made progress at a rate of one (or less), two, and three (or more) book levels?

On the average, approximately half the public school participants improved somewhat in reading (one or less book levels); 47% improved by

two or more levels, and about 18% improved by three or more levels.

On the average, approximately a third of the parochial school participants improved somewhat in reading (one or less book levels), about 64% improved by two or more book levels, and about 24% improved by three or more book levels. The rates of improvement appear to be related to the scheduling of pupils to the centers. There also appears to be a school factor involved, both between and within public and nonpublic schools.

Evaluator's Comment

It would appear that the project implementation at those schools where the rate of progress achieved in reading is below two or more book levels per year on the average could be improved. This might be brought about by increasing the scheduled rates of pupils' attendance to four or five times per week.

IMPROVEMENT OF READING SKILLS. PART-TIME
(PBRS #211-02-718)

This project report is related to the two preceding reports and should be interpreted in the context of both the subcluster comment, "Improvement of Reading Skills," and the "cluster overview" in earlier pages of this volume.

This project uses part-time reading teachers to serve pupils from low socioeconomic neighborhoods who attend a parochial school.

The rationale of the "Part-Time" project is similar to that of the Reading Skills Centers project. Objectives of the project include the following:

Objective 1. To improve pupils' reading comprehension.

Objective 2. To improve pupils' word-attack skills.

The project is implemented at 31 elementary nonpublic schools in different sections of Philadelphia. Pupils selected to participate in the project are usually not those with the most serious reading problems; however, there are some in this group who are reading about two to three years below grade level. Pupils attend the project at least three hours a week and receive special instruction in reading which is partially individualized. Class size varies between nine and fifteen pupils. Teachers work out schedules and programs tailored to the pupils' reading problems, the situation, and their own teaching skills. The curriculum uses many reading materials and programs. For example, for word-attack skills, the Durrell-Murphy Phonics Program, Phonics and Word Analysis and Reading (Continental Press, Inc.), Structural Reading Series (A-D) (Stern), Smith Reading Development Kit A (80 lessons), Phonics We Use Learning Game Kit and Spelling Kit B (Lyons and Carnahan).

For comprehension, literature, and study skills, materials include, for example, Barnell Loft's Specific Skills, (Levels A-E): "Getting the Main Idea," "Using the Context," "Working with Sounds," "Following Directions," "Locating Answers," "Getting the Facts," "Drawing Conclusions."

All of the reading teachers have the same basic materials available to them. They must select those which appear to be most useful for their pupils' individual needs.

The classroom usually contains tape recorders, record player, work books, work sheets, tapes, records, and listening centers (individual headphones connected to a common outlet).

Pupils, upon entering the room, usually are engaged in a group activity with the teacher (e.g., a phonics lesson with a work book and tape or a directed reading activity). This is followed by small-group or individual assignments dealing with various remedial tasks. Pupils are assigned to these smaller groups according to reading level and particular problems, and every effort is made to provide a variety of experiences. Pupils complete their own tasks and are then free to help each other. The teacher checks over completed work and helps individuals. Pupils who have made outstanding progress are noted and attendance in the project is terminated in some cases when the child is reading on grade level. The project does not use aides' services.

Previous evaluations of the project showed that pupils were improving on word-attack skills and in reading comprehension. Last year's evaluation revealed that pupils, in grades three through eight, made gains in reading comprehension and word-attack skills. Whereas 50% of the pupils were reading at or above book level 22 at the beginning of the year, 75% were reading at or above that level by the end of the year, and most pupils had achieved mastery of the phonics skills.

Current Evaluation Procedure

This year's evaluation focused upon two questions:

1. To what extent have pupils in the project improved in reading comprehension?

2. To what extent have pupils improved in phonics as a word-attack skill?

Question 1. To what extent have pupils in the project improved in reading comprehension?

All pupils who participated in the project for the greater part of the year were involved in the evaluation. Teachers reported September and June IRI reading book levels which were analyzed for each grade.

Question 2. To what extent have pupils improved in phonics as a word-attack skill?

The Phonics Inventory scores were reported for September and June, and these were examined by grade for average scores and for the percentage of pupils achieving mastery. A score of 70 points (of a possible 80) was used to signify basic mastery. (This test was an experimental version of the phonics inventory.)

Results

Data relevant to Question 1. To what extent have pupils in the project improved in reading comprehension?

Table 1 displays the September and June median book levels for each grade. On the average, the improvement in the median book level was at least two books.

TABLE 1

MEDIAN BOOK LEVELS AND GAIN FOR EACH GRADE

Grade	IRI MEDIAN BOOK LEVEL		Number of Books Gained in Median Book Level
	Sept.	June	
2	PP	P	1
3	1	2^2	2
4	2^1	3^1	2
5	2^2	4	3
6	3^1	4	2
7	3^2	5	3*
8	4	5	2*

*An increase from book 4 to book 5 is treated as two "half-year" gains, or a gain of two books.

Table 2 shows the percentages of pupils in each grade that were reading at the June median book level in September and in June. The difference between the percentages for each grade shows the extent to which pupils improved in reading comprehension. For example, only 10% of the third-grade pupils were reading at or above book level 2^2 in September, and 46% were reading at or above book level 2^2 in June.

TABLE 2

PERCENTAGES OF PUPILS IN SEPTEMBER AND JUNE WHO MATCHED OR EXCEEDED MEDIAN POSTTEST BOOK LEVEL

Grade	Number of Pupils in September 1971	June Median Book Level	Percentage Who Matched or Exceeded June Median Book Level on Sept. Pretest	Percentage Who Matched or Exceeded June Median Book Level on June Posttest	Increase in Percentage
2	18	P	33%	64%	+31
3	134	2^2	10%	46%	+36
4	283	3^1	6%	50%	+44
5	292	4	7%	50%	+43
6	248	4	16%	61%	+45
7	123	5	16%	55%	+39
8	40	5	23%	62%	+39
Overall	1138	--	11%	53%	+42

Data relevant to Question 2. To what extent have pupils improved in phonics as a word-attack skill?

Table 3 shows the percentages of participants in each grade who had a mastery of phonics in September and in June. The difference between percentages in each pair shows the extent of improvement. For example, 21% of the fifth-grade pupils had a mastery score at the beginning of the year, and 50% of them had achieved mastery of phonics by the end of the year.

TABLE 3

PERCENTAGES OF PUPILS WHO ACHIEVED MASTERY IN SEPTEMBER AND JUNE ON THE PHONICS INVENTORY

Grade	September (1971)	June (1972)	Increase in Percentage
2	0%	0%	+ 0
3	4%	21%	+17
4	4%	31%	+27
5	21%	50%	+29
6	16%	52%	+36
7	21%	56%	+35
8	14%	61%	+47
Overall	13%	42%	+29

Conclusions

Question 1. To what extent have pupils in the project improved in reading comprehension?

Pupils' reading comprehension improved. On the average, it gained at a rate better than two book levels per year. (This finding validates the previous year's data.) There were substantial increases from September to June in the percentages of pupils achieving at or above the posttest median book level. Over all grade levels, one finds that the number of pupils exceeding the median posttest book level improved to an amount greater than 40% of the participants.

Question 2. To what extent have pupils improved in phonics as a word-attack skill?

Pupils' word-attack skills improved. On the average, in grades three through eight, the number of pupils who achieved mastery of the

phonics skills was increased by 29 percentage points. The proportion of pupils who achieved mastery of phonics seemed to be related to the participants' grade. That is, the higher the grade level, the greater the proportion of pupils in that grade who achieve mastery.

IMPROVEMENT OF READING SKILLS: PRIMARY READING SKILLS CENTER (PBRS #211-02-719)

This project report is related to the three preceding reports and should be interpreted in the context of both the subcluster comment, "Improvement of Reading Skills," and the "cluster overview" in earlier pages of this volume.

The Primary Reading Skills Center (PRSC) project serves primary-grade pupils from the Title I target area who attended the St. Columba parochial school.

The rationale of the project is similar to that of the Reading Skills Centers project. Objectives of the project include the following:

Objective 1. To improve pupils' word-attack skills.

Objective 2. To improve pupils' reading comprehension.

The number of pupils involved in the project during the current school year was 29 kindergarten pupils, 12 first-grade pupils, 17 second-grade pupils, and 17 third-grade pupils. The PRSC teacher reported that kindergarten pupils attended twice a week, first- and second-grade pupils attended five times a week, and third-grade pupils attended four times a week. Usually, sessions were held for 50-minute periods.

A reading teacher and one aide provide individualized reading instruction for pupils in kindergarten through fourth grade (or through third, depending upon the demands of the given year). First-grade pupils are given an alphabet flash test at the beginning of the year. Those who do not know their alphabet are accepted into the PRSC. Second- and third-grade pupils who are reading four or more IRI book levels below grade expectancy are also accepted into the project. The project provides multi-media and multilevel materials for the teacher to use in small-group or individualized instruction. Pupils should leave the project when they are reading on grade level, or when they are promoted to fourth grade (or when time is available for special instruction of fourth-grade pupils, when they are promoted to the fifth grade).

Previous evaluations indicated that pupils made improvements in reading comprehension and word-attack skills.

Current Evaluation Procedure

The evaluation for the 1971-1972 school year focused upon an examination of two questions:

1. To what extent do pupils in the project show improvement in word-attack skills?

2. To what extent do pupils in the project show improvement in reading comprehension?

Question 1. To what extent do pupils in the project show improvement in word-attack skills?

To answer this question, the results of the alphabet test, the Botel Phonics Inventory, and the CAT-70 Vocabulary subtest grade-equivalent scores were examined. The alphabet test results of this year's first-grade pupils (1971-1972), the available scores of 1970-1971 first-grade pupils, and the available scores of 1969-1970 first-grade pupils were used to calculate average improvement. The Botel Phonics Inventory scores for the current third-grade pupils were used to calculate the average rate of improvement over a two-year period. The CAT-70 Vocabulary scores for the current third-grade pupils were used to determine average improvement for a three-year period of time; the scores for the current second-grade pupils were examined for a two-year period. The gains for each of these groups were compared to ascertain the effect of the project on pupils' vocabulary achievement. Also, the average scores and/or the numbers of pupils reaching a given level of achievement were computed and reported in tabular form.

The alphabet test has 52 items, and a score of 50 represents essential mastery recognition of upper- and lowercase letters.

The Botel Phonics Inventory has 46 items on the portion given to second-grade pupils, and a score of 41 or better represents mastery. Sixty-four items are given to third-grade pupils, and a score of 50 or better is used as a criterion of mastery.

The CAT-70 grade-equivalent scores should approach grade levels of 1.5, 2.5, or 3.5, depending upon the pupils' grade level, since the test is administered at midyear.

Question 2. To what extent do pupils in the project show improvement in reading comprehension?

To answer this question, the average book-level achievements measured by the Individual Reading Inventory (IRI) and the average grade-equivalent CAT-70 Reading Comprehension subtest scores were examined.

Third-grade pupils' median IRI book-level achievements over two years were examined. The median book level for each pre-, mid-, and posttest period was used to chart progress over a two-year period.

Book-level achievement on the IRI test was examined in terms of the percentage of pupils gaining zero, one, two, and three (or more) book levels in one year.

Third-grade pupils' average CAT-70 Reading Comprehension grade-equivalent scores for three years, and second-grade pupils' grade-equivalent scores for two years were reported.

CAT-70 Reading Comprehension scores were compared to norms of 1.5, 2.5, and 3.5 grade equivalent, depending upon the pupils' grade levels. Tests were administered at midyear.

Results

Data relevant to Question 1. To what extent do pupils in the project show improvement in word-attack skills?

Results of the alphabet tests are summarized in Table 1.

The consistency in the participants' achievement at the end of their first-grade experience for each year suggests that the project has a constant effect on participants.

TABLE 1

SUMMARY OF ALPHABET TEST ACHIEVEMENT, 1969-1972,
FOR PUPILS CURRENTLY PARTICIPATING IN PRSC

	First-Grade Scores of Participants		
	1969-1970 (N=11)	1970-1971 (N=11)	1971-1972 (N=10)
Pretest	All pupils reported scored below 50 points each year		
Posttest	5 pupils>50 pts.	8 pupils>50 pts.	7 pupils>50 pts.
Posttest Average Score	46 pts.	48.5 pts.	49 pts.

The results of the Botel Phonics Inventory are reported in Figure 1.

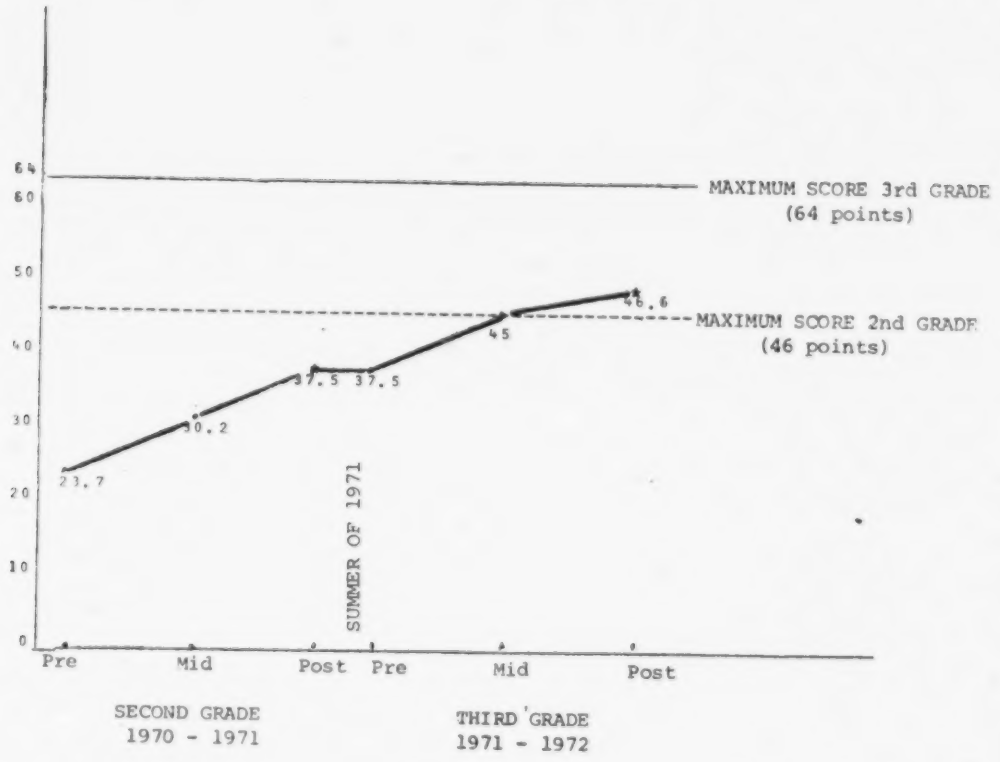

Fig. 1. Phonics progress of thirteen third grade participants covering two years (Botel Scores).

*NOTE: Nine pupils exceeded the criterion of 46 by the 1971 posttest. Five pupils exceed the criterion of 50 by the end of the 1972 posttest.

The increase of the average score for phonics achievement suggested that there was generally a constant project effect on pupils' grasp of phonics as a word-attack skill. There was no loss in the average score over the summer months from the posttest of one year to the pretest of the next year. The average rate of gain during the academic year was six points every half-year of school.

Current second- and third-grade pupils' average CAT-70 Vocabulary scores for the years they participated in PRSC are reported in Table 2. Also, the discrepancy from the national norm is reported for each average score.

TABLE 2

AVERAGE CAT-70 VOCABULARY G.E. SCORES AND DISCREPANCIES FROM THE NORMS FOR TWO GROUPS

	Grade in which test was administered					
	First Grade (Norm = 1.5)		Second Grade (Norm = 2.5)		Third Grade (Norm = 3.5)	
Current Grade	Ave. G.E.	Discrep-ancy	Ave. G.E.	Discrep-ancy	Ave. G.E.	Discrep-ancy
3	1.4	-0.1	1.9	-0.6	3.3	-0.2
2	1.3	-0.2	2.2	-0.3	To be given next year	

The discrepancies between the average score and the national norm in the first grade was about the same for both groups. For both groups, the discrepancy increased in the second grade, and for the current third-grade pupils, the discrepancy this year decreased from that of the previous year. The average rate of improvement for both groups was about 0.9 grade-equivalent years in a year's time.

Data relevant to Question 2. To what extent do pupils in the project show improvement in reading comprehension?

The average PRSC pupils' IRI book-level gains for a year of instruction are reported in Table 3.

TABLE 3

THIRD-GRADE PRSC PUPILS' MEDIAN IRI BOOK LEVEL FOR TWO YEARS

Second-Grade Medians			Third-Grade Medians		
Pre	Mid	Post	Pre	Mid	Post
pp	pp	p	p	2^1	2^1

Differences among the median book levels suggest that the pupils made greater gains during their third-grade experience than during their second-grade experience. No general loss was reported from the posttest of one year to the pretest of the next year.

Current second- and third-grade pupils' average CAT-70 Reading Comprehension scores for the years they participated in PRSC are reported in Table 4. Also, the discrepancy from the national norm is reported for each average score.

TABLE 4

AVERAGE CAT-70 READING COMPREHENSION G.E.'s AND DISCREPANCIES FROM THE NORMS FOR TWO GROUPS

	Grade in which test was administered					
	First Grade (Norm = 1.5)		Second Grade (Norm = 2.5)		Third Grade (Norm = 3.5)	
Current Grade	Ave. G.E.	Discrepancy	Ave. G.E.	Discrepancy	Ave. G.E.	Discrepancy
3	1.3	-0.2	1.9	-0.6	3.3	-0.2
2	0.3	-1.2	1.7	-0.8	To be given next year	

On the average, current third-grade participants came within 0.2 years of the third-grade national norm of 3.5. The average rate of improvement for both groups was 1.1 grade-equivalent years in a year's time.

Conclusions

Question 1. To what extent do pupils in the project show improvement in word-attack skills?

During participants' first-grade experience in PRSC, about 50% to 70% have learned to recognize the upper- and lowercase letters of the alphabet.

Participants who continue in the project during the second and third grades tend to gain in phonics skills at a rate of six points each half-year. At the end of their third-grade experience, however, about 70% of the pupils had not yet mastered the phonics skills.

On the average, participants who continue in PRSC tend to improve at a rate of 0.9 grade-equivalent years each year in Vocabulary. Greater average gains were noted from the second to the third grade than from the first to the second grade.

Question 2. To what extent do pupils in the project show improvement in reading comprehension?

More than half of the continuing participants improve at a rate of two or more IRI book levels per year. Greater gains appear to be made during the third-grade experience than during the second-grade experience. Participants' median instructional reading level has generally improved from four book levels below grade level in the first grade to two book levels below grade level at the end of the third grade.

On the average, participants who continue in PRSC tend to improve at a rate of 1.1 grade-equivalent years each year in Reading Comprehension.

INDIVIDUALIZED EDUCATION CENTER
(PBRS #211-06-733)

This project report should be interpreted in the context of the "cluster overview" in earlier pages of this volume.

The Individualized Education Center (IEC) project serves pupils from different socioeconomic neighborhoods who attend St. Mary's Interparochial School located in Society Hill. Instruction is individualized through multimedia and programmed materials.

The IEC was directed within a philosophy of education which considers the religious and ethical viewpoints of a pupil's spiritual, moral, social, intellectual, and physical development. (Although this evaluation was focused upon pupils' intellectual achievements, this is not meant to minimize the importance of other aspects of a child's education.)

A brief overview of the philosophy will serve to show the nature of the unified commitment of the project's staff to education within a framework of human worth and dignity. For example, the IEC leaders intend to create in each child an awareness of his or her spiritual destiny, nature, dignity, and potential in relationship to other people through religious teaching. They intend to build in each child a sense of social justice and responsibility by promoting individual learning experiences. They propose to establish patterns of social behavior devoid of prejudice by encouraging nonsegregated participation in classroom and other school activities. They also intend to provide basic tools of learning, and an intense motivation to excel, by focusing attention upon achievement goals set for each child and minimizing comparisons among children's achievements.

The reader is referred to the Evaluation of Title I ESEA Projects, 1970-1971 for a description of the project's rationale and operating characteristics. However, some changes have occurred since that report: (a) an increase in pupil population, (b) additional testing, (c) the introduction of new curricular programs, and (d) a reorganization of grouping strategies.

The pupil population increased by about 60 pupils, bringing the total near 240. The new students were from the former St. Patrick's Parochial School.

Basic skill tests were administered to all pupils in October, February, and June. The June testing period was added this year so that

the effectiveness of the changes in instructional practices initiated after the February test results could be examined by the IEC staff.

New curricular programs were introduced in an effort to improve self-concepts. Primary-level Puerto Rican pupils served as tutors in grades one through four. They taught their native language to the children in those grades. Students Concerned, a drug-prevention organization, used young adults to teach IEC pupils the dangers inherent in drug abuse. This program was initiated at the request of the parents from neighborhoods in which drug problems were prevalent. Black and Puerto Rican culture was taught to IEC pupils by Dr. Wiedner, Professor of African Studies at Temple University and President of the Delaware Valley Africanist Society. Shop and home economics were taught at the neighboring public school.

Team teaching in the areas of mathematics and reading was initiated during the 1971-1972 school year. The teams were grouped as follows: Team 1--grades one and two, Team 2--grades four, five, and six, and Team 3--grades seven and eight. The third grade was housed in the convent across the street from IEC because of the increased pupil enrollment and the resultant limited physical space at the center.

Low-ability sixth-, seventh-, and eighth-grade pupils were assigned to Team 2, and served as "pupil tutors" for pupils in Grades 4, 5, and 6. High-ability fifth- and sixth-grade pupils were assigned to Team 3 for advanced instruction in mathematics and reading.

The director had hoped that the heterogeneous ability grouping would provide a maximal opportunity for pupils to share their knowledge with one another and strengthen their own abilities, but increased enrollment in 1971-1972 had made this kind of grouping untenable. Therefore Team 3 was further subdivided into three groups later in the year. Group A consisted of the higher-ability students from Grades 7 and 8; Group B consisted of the average-ability group (these two groups continued the program of individualization); Group C became a special group of 15 pupils who followed "whole class" classroom organization. The director thought that lower-ability pupils might benefit more from the uniform class instruction with increased direction than they would from less structured and individualized instruction. However, the group was small, and opportunities for individualized attention and assessment of progress were still possible.

Objectives of the project include the following:

Objective 1. To individualize instructional practices.

Objective 2. To improve pupil performance in the basic skills.

The previous year's evaluation had shown an increase in individualization of instruction during the school year. Iowa Tests of Basic

Skills (ITBS) administered in October and February had shown exceptionally rapid progress made by pupils, but because the pupils had taken the test for the first time in October, it was not known to what extent that lack of experience had influenced the gains observed.

Current Evaluation Procedure

Since there was a large turnover in staff this year, it was important to reconsider the question of progress in individualizing instruction. Because of the uncertain interpretation of achievement, it was important to reexamine achievement on a pre-, mid-, and posttest basis, and compare gains this year with gains in the previous year. Therefore, the 1971-1972 evaluation focused on the two questions:

1. Has IEC increased the individualization of instructional practices?

2. Has pupil performance improved in the basic skills?

Question 1. Has IEC increased the individualization of instructional practices?

Instructional practices of the project were observed through the use of the Additional Observational Items Checklist. All classroom groups at the center were observed at least twice. Findings (expressed in percentages) during the second half-year were compared with those of the first half-year to reveal any changes in the degree of individualization of instruction, and were further compared with the findings from the previous year.

Question 2. Has pupil performance improved in the basic skills?

Data for this question were obtained from the scores of all pupils in attendance during the 1971-1972 school year. These were compared over the year to determine class progress. Scores for Grades 3-8 were obtained from three administrations of the Iowa Tests of Basic Skills (ITBS) on four subtests: Vocabulary, Reading, Arithmetic Concepts, and Arithmetic Problems. Also, the average scores of IEC pupils for two years were examined by converting to percentile ranks and then examining the scores for a pattern of change over two years.

Results

Data relevant to Question 1. Has IEC increased the individualization of instructional practices?

Observed class structures which were characteristic of the project from October to January were whole class and multigroup structures. From February to May, the multigroup structure was the predominant class strucutre. Observed teaching forms for the period from October to January were teacher-pupil interaction and pupils doing independent work; for the period from February to May the forms were pupils interacting with educational materials and pupils doing independent work. The 105 formal observations are summarized in Table 1. (Each "formal observation" was a five-minute period summarized on the Additional Items Checklist.)

TABLE 1

SUMMARY OF IEC FORMAL OBSERVATIONS

Items and Categories	Percentage of Observations	
	Oct.-Jan. (45 Formal Observations)	Feb.-May (60 Formal Observations)
Class Structure		
Whole class	33%	0%
Two groups	0%	5%
Multigroup	58%	95%
Individual	9%	0%
Total	100%	100%
Teaching Form		
Teacher instructing (teaching)	6%	10%
Teacher-pupil interaction	43%	5%
Pupils interacting with educational materials	8%	50%
Pupils doing independent work	43%	35%
Total	100%	100%

Comparisons of these percentages with the previous year's showed that in both years the teachers had begun with practically identical class structures and teaching forms. However, this year during the second half-year they utilized more "multigroup" structures than in the previous second half-year in which they had used more "individual" structures. The overall changes were quite similar each year with the one exception noted.

Data relevant to Question 2. Has pupil performance improved in the basic skills?

Table 2 displays each grade's average grade-equivalent scores for four Iowa Tests of Basic Skills subtests (Reading Comprehension, Vocabulary, Arithmetic Concepts, and Arithmetic Problems) for October, February, and June of the 1971-1972 academic year. Most of the average scores show that pupils have made substantial improvements in the basic skills during the instructional year. The rate of gain in Vocabulary exceeded the rate of gain in Reading, and the rate of gain in Arithmetic Problems slightly exceeded the rate of gain in Arithmetic Concepts. The grades' average rates of gain for all subtests ranged between 0.8 and 1.5 grade-equivalent years per 0.8 years of instruction (or between 1.0 years per year). These were substantially greater rates of gain than made by the norming population within the same general percentile range.

TABLE 2

INDIVIDUALIZED EDUCATION CENTER AVERAGE G.E. SCORES ON FOUR SUBTESTS FOR GRDS. 3-8 FOR THREE TEST ADMINISTRATIONS DURING THE 1971-1972 ACADEMIC YR.

	Average G.E. Scores											
	Reading Comprehension			Vocabulary			Arithmetic Concepts			Arithmetic Problems		
Grade	Oct	Feb	June	Oct	Feb	June	Oct	Feb	June	Oct	Feb	June
3	1.8	3.0	3.3	2.8	2.8	3.2	2.5	3.3	3.3	1.6	3.2	3.5
4	2.5	3.6	3.3	2.4	3.6	---	3.1	4.0	3.9	2.8	3.9	3.9
5	4.1	4.4	4.8	4.6	4.7	---	4.4	5.0	5.2	4.4	4.6	4.8
6	5.0	5.6	6.3	5.6	6.0	---	4.9	5.7	5.8	5.1	5.3	5.3
7	5.3	6.3	7.1	6.0	5.7	6.3	5.6	6.4	7.1	5.3	6.2	7.0
8	6.6	6.9	7.9	7.5	7.3	8.7	6.7	7.2	8.5	6.5	6.8	7.2

The data from two years, Grades 3-8, for the Reading and Arithmetic Problems were averaged in terms of percentile ranks. These averages are summarized in Table 3.

TABLE 3

GRADES 3-8 READING-COMPREHENSION AND ARITHMETIC-PROBLEMS
AVERAGE PERCENTILE RANK OF IEC PUPILS FOR TWO YEARS

School Year	Testing Period		
	October	February	June
1970-1971	21	32	(No test)
1971-1972	20	27	30

The available data indicated that IEC pupils made their largest percentile-rank gains during the first half of each year. From year to year the average pupil maintained his relative standing with respect to the national norms, and during each academic year he improved upon his relative standing. It should be understood that in order to maintain the percentile rank from year to year, the average IEC pupil must have gained about one grade-equivalent year for each year of instruction.

Conclusions

Question 1. Has IEC increased the individualization of instructional practices?

Increasing individualization of instruction was evidenced by changes in class structure and teaching form in IEC classrooms. Individualization of instruction was observed in the large portion of time pupils did individual work, either teacher-determined or self-determined, within the general multigroup classroom structure.

Question 2. Has pupil performance improved in the basic skills?

The average IEC pupil improved in the basic skills by more than one grade equivalent for a year of instruction. On the average, pupils improved their percentile rank by eleven points during the academic year. A year-to-year comparison also showed that the average pupil maintained pace with the norming population's improvement in the basic skills.

Evaluator's Comment

Any attempt to relate the large gains made by IEC pupils at the beginning of each year and the more standard gains made during the second half-year would be questionable. One might posit that the pattern observed is due to scaling changes from one test to another, or that pupils were out of practice near the beginning of the school year and did not respond to the test situations quite so well. However, relationships between achievement rates for each half-year and the classroom structure/teaching form combinations might be possible if at least three conditions are met in the future: (a) no large changes in staff or pupils occur next year; (b) the staff continues in its teaching approach at the beginning of next year as it was at the end of the current year; and (c) the same tests are again administered three times over the year.

LEARNING DIMENSIONS
(PBRS #211-01-791)

The Project

This project report should be interpreted in the context of the "cluster overview" in earlier pages of this volume.

The Learning Dimensions program (LDP) at the W. F. Miller, John Moffet, and W. C. Longstreth Schools is a staff development project. Its thrust is to develop the "open" classroom teaching capabilities among teachers by organizing classrooms around activity centers. Additional components promote curriculum and pupil diagnosis based upon Piagetian theory.

An explanation and description of the project can be found in the previous year's report (Evaluation of Title I ESEA Projects, 1970-1971).

The earliest evaluations of LDP were formative and emphasized identification of problems in implementation and measurement. A test of mental operations was developed during the 1969-1970 academic year and was used to evaluate pupils' development in relation to the degree of their teacher's commitment to the project. No differences in mental-operations gain was found between pupils whose teachers showed low and high degrees of commitment. It was found that the teachers had gained in understanding and use of techniques of the project.

The 1970-1971 evaluation emphasized an assessment of staff development activities on four levels of concern. The findings revealed that (a) the project provided a broad scope of staff development activities, (b) teachers gained insight with respect to strategies for organizing classroom activity centers, and (c) teachers tended to move toward individualizing instruction in an "open" setting.

Objectives of the project include the following:

Objective 1. To provide staff development activities and to promote "open" instruction in activity-centered settings.

Objective 2. To improve pupils' concrete logical thinking capabilities.

Objective 3. To improve pupils' language development in reading, writing, speaking, and listening.

Objective 4. To improve pupils' problem-solving skills.

Current Evaluation Procedure

This year the evaluation of LDP was focused on the following questions:

1. To what extent have teachers adopted "open" teaching in activity-centered classrooms?

2. Have pupils improved in their concrete logical thinking capabilities?

3. Have pupils improved in reading and mathematics achievement?

Question 1. To what extent have teachers adopted "open" teaching in activity-centered classrooms?

Classrooms were monitored during the year to ascertain the kinds of activities, classroom organizations, and teaching forms used. Interviews were conducted and recorded on T.V. tape by the LDP staff. Other informal interviews were conducted by the evaluator. The information was used to assess the teacher's degree of use of "open" classroom teaching and the use of activity centers in the classroom.

A Descriptive Scale of Teaching Style was developed by the LDP staff, consultant, and evaluator (see Table 1). The evaluator then assessed each teacher's position on the scale to determine the degree to which the staff at each school had adopted techniques desired by the project.

Question 2. Have pupils improved in their concrete logical thinking capabilities?

The Raven Test of Logical Operations was administered by reading the questions to pupils. Each pupil had a copy of the test with the patterns or drawings for each item. The test was composed of the following subtests:

1. Classification composed of eight factors; items test the child's ability to find all members of a group, to find all groups to which members may belong, to regroup, to find groups within groups, and to compare the numbers of group and subgroup members.

2. Seriation composed of three factors; items test the child's ability to place things in linear order, to place things in alternating linear order, and to place things in curvilinear order.

TABLE 1

DESCRIPTIVE SCALE OF TEACHING STYLE

GROUP	CONTENT	PUPIL GROUPING	TIME STRUCTURE	CENTERS	TYPE OF DIAGNOSIS	TYPE OF PRESCRIPTION
1	Directed by Teacher. Single text or reference	Whole Class	Specific time blocks		Test achievement or right vs. wrong	Class must do page or chapter "X" next
2	Directed by teacher. Single text or reference predominates, occasional use of other materials	By achievement. Teacher-directed	Very specific time blocks	Minimum of centers. Child - directed into each.	Content-based, achievement scores	Groups must do page or chapter "X" next
3a	Directed by teacher--more diversity than in 2	Large number of children. Small number of groups	Specific time blocks	Centers are product-oriented--children can finish tasks in one session	(Content based) achievement in and completion of tasks	Groups must do "X", may do "Y".
3b		Small number of children. Large number of groups		Optional supplementary activities provided for child if he or she finishes assigned task		
4a	Similar to 3	Groups more self-determined	Fluid time spans	Pupils have some choice of which centers to use	Content-based completion of tasks.	Do next of remaining tasks
4b				Multiple activities for specific content area (e.g., many math activities)		

TABLE 1 (CONTINUED)

DESCRIPTIVE SCALE OF TEACHING STYLE

5	Pupils choose among several areas available at same time	Self-directed group affiliations—pupils deal with problems of self-direction	Fluid time spans	Several different centers available	Content based--pupils do select number of all tasks available	Do select number from remaining tasks
6	Pupils choose among several areas available at same time	Self-direction complete; groups and individuals work as needed	Fluid time spans	Several different centers available	Teacher diagnoses pupils' skills in processing data	Teacher prescribes tasks of interest to pupil
7	Team teaching through joint planning	Regrouping of pupils from different classes	Fluid time spans	Multi-leveled centers constructed by pupils with teacher help	Teacher diagnoses pupils' skills in processing data	Teacher prescribes tasks of interest to pupil

3. Logical Multiplication composed of two factors; items test the child's ability to do analogies and to consider two variables simultaneously.

4. Compensation composed of four factors; items test the child's ability to use four different strategies for restoring balance or equality once the balance or equality of a situation has been disturbed.

5. Proportional Thinking composed of three factors; items test the child's ability to compare two proportions and identify the increase, decrease, or equality when either or both of the variables are changed.

6. Probability Thinking composed of two factors; items test the child's ability to consider the probability of one event occurring more often than others, and to consider which setting gives the best probability for an event to occur.

7. Correlational Thinking composed of three factors; items test the child's ability to recognize positive, negative, and zero correlational relationships between two factors and the frequency of their occurrence.

Three classes in each of two schools (hereafter called Schools A and B), Grades 4, 5, and 6, were given a pretest and a posttest. Three other classes in each of the same schools, Grades 4, 5, and 6, were given a posttest only. The classes that received both pretest and posttest were examined for gains. A multivariate analysis was conducted to determine whether the pretest had any effect on the posttest scores. Posttest scores were correlated with Reading and Total Arithmetic grade-equivalent scores on the Iowa Tests of Basic Skills. The posttest scores were also correlated with IRI book-level results.

Question 3. Have pupils improved in reading and mathematics achievement?

Three years of data for Grades 3, 4, 5, and 6, from Schools A and B were examined. The average grade-equivalent score for the Reading and Total Arithmetic subtests of the ITBS were compared from year to year. To determine whether the pupils were gaining more than other pupils in like situations the scores were compared with the district average grade-equivalent scores.

Results

Data relevant to Question 1. To what extent have teachers adopted "open" teaching in activity-centered classrooms?

Table 2 shows the number of teachers in each school who were assessed in each category of the Descriptive Scale of Teaching Style. The

TABLE 2

DISTRIBUTION OF TEACHERS ON DESCRIPTIVE SCALE OF TEACHING STYLE*

Scale	School A (N=15)	School B (N=14)	School C (N=5)
1	0	0	4
2	1	1	1
3	4	4	0
4	3	4	0
5	3	4	0
6	4	1	0
7	0	0	0

*For scale descriptions, see Table 1. The numbers on the scale from 1 to 3 indicate some changes from "whole class" practices, but mostly as minor variations from the "whole class" emphasis. Numbers on the scale from 4 to 7 indicate major changes in emphasis from "whole class" to "individualization."

data show that teachers in School A have adopted project techniques to a greater extent than teachers in Schools B and C. Teachers in School B have progressed further toward the project's goals of instruction than those in School C. These findings are related to the length of time each faculty has participated in the project in that School A's teachers have been involved for three years, School B's teachers for two years, and School C's teachers for one year. Teaching practices differed from project expectations in the following ways.

Many teachers had not adopted a diagnostic approach from which they could examine the logical processes pupils use in problem solving. Even fewer used prescriptive techniques which focused the pupils' attention upon problems and tasks for exploring their environment, although it was suggested in staff development meetings. Only occasionally did teachers indicate that they had used the natural or social environments as a source of material or as a setting for the curriculum. Although teachers did use individual or group prescriptions, tasks most often related to tests of skills rather than natural problems in which skills would be applied or the need to learn them would be realized. Further, although it was observed that teachers most often dealt with classificational, seriational, logical multiplication (analogies) and compensatory-thinking skills in their self-developed or purchased activity cards, they gave little attention to the other logical skills.

In addition to practices which emphasized the postulates of the program, some teachers developed strategies unique to the problem. For example, teachers in School B explored team teaching as well as the use of activity centers. Teachers in School A developed a reading plan based upon the logical operations for use in the following year. They thereby indicated a degree of sophistication and progress in relating curriculum and theory in the area of reading. A few teachers in both schools developed questions patterned upon the logical operations and gathered their own pretest and posttest information for diagnostic and achievement purposes.

Staff development workshops were provided for teachers and aides. The workshops consisted of sessions centered around logical operations, mathematics and logical operations, mathematics and art, art appreciation and logical operations, creative writing, and impromptu acting.

Data relevant to Question 2. Have pupils improved in their concrete logical thinking capabilities?

Table 3 displays the test results for those classes involved in the pretest and posttest administrations of Raven's Test of Logical Operations. At School A, improvements were noted for most areas of the test except in the compensation operations. In School B, improvements were noted for half the areas of the test but not in areas of compensation, proportional thinking, and probability.

Classes in grades five and six made the largest improvements in the logical thinking operations, but the fourth-grade class in School B also made a notable improvement, primarily due to an improvement in classification and correlation scores. Almost all classes in School B showed negative improvement in the compensation, proportional thinking, and probability subtests, which might be related to the little emphasis those areas received during the school year at School B.

The multivariate analysis of variance procedure used to examine all the posttest scores showed (a) that there was a significant interaction between the school and testing procedure, (b) that the pupils who were pretested had significantly different posttest scores from those who were not pretested, and (c) that the two schools' posttest scores overall were not significantly different from each other. Therefore, it may be concluded that the pretest had a confounding affect upon the posttest scores, and therefore, further interpretation of gains in light of different teaching styles would not be meaningful.

Correlations were determined for the Raven test and the Reading and Total Arithmetic subtests of the ITBS and the IRI. These correlations are listed in Table 4.

TABLE 3

AVERAGE PRETEST AND POSTTEST SCORES ON RAVEN'S TEST OF LOGICAL OPERATIONS

		Classification	Seriation	Logical Multiplication	Compensation	Proportional Thinking	Probability	Correlation	Total
Possible Scores		16	8	12	8	6	9	9	68
School A:									
Grade 4	Pre	4.5	1.4	2.9	3.2	2.0	2.3	0.3	16.3
	Post	4.8	1.7	5.7	3.2	2.2	2.6	0.0	17.0
5	Pre	7.3	2.4	6.0	4.4	2.3	3.4	0.3	26.5
	Post	7.3	2.5	7.2	4.7	2.1	4.2	3.0	32.0
6	Pre	6.2	2.1	5.9	5.3	2.9	4.2	0.7	27.3
	Post	7.2	3.9	8.5	5.0	3.8	4.9	3.6	36.1
School B:									
Grade 4	Pre	7.9	2.3	5.5	5.0	2.7	3.4	0.3	25.2
	Post	8.1	2.5	5.5	4.0	2.4	3.1	2.7	28.4
5	Pre	6.6	2.1	5.6	5.2	2.7	4.2	0.7	27.6
	Post	8.3	3.3	6.9	4.4	3.6	4.6	2.4	34.0
6	Pre	6.1	3.0	5.0	4.5	3.1	5.0	0.5	27.4
	Post	7.5	3.3	6.7	3.2	3.0	4.2	1.3	31.1

TABLE 4

CORRELATIONS OF ACHIEVEMENT TESTS WITH
RAVEN'S TEST OF LOGICAL OPERATIONS

School	RTLO and ITBS Reading	RTLO and ITBS Total Arithmetic	RTLO and IRI
A+B	(N=214) r=.50	(N=209) r=.65	--
A	(N=116) r=.60	(N=110) r=.60	--
B	(N= 98) r=.37	(N= 99) r=.72	(N=87) r=.61

All of the correlation coefficents are statistically significant. According to the correlation coefficients, between 12% and 50% of the achievement variances can be explained in terms of pupils' grasp of the logical operations.

Data relevant to Question 3. Have pupils improved in reading and mathematics achievement?

Table 5 shows the average grade-equivalent scores from School A for the Reading and Total Arithmetic subtests of the ITBS.

The current 1971-1972 academic year grade-equivalent scores are reported in the last column of each part of the table. The current year's scores for grades four, five, and six matched or exceeded the local district's average grade-equivalent scores in Reading for these respective grades. Also, grades four and six matched or exceeded the local district's average grade-equivalent scores in Total Arithmetic for the respective grades.

By reading down diagonally left to right, the progress of groups generally composed of the same pupils from year to year may be observed and compared. The average progress in reading from 1971 to 1972 was 0.7 years in a year's time; in Total Arithmetic, the average progress was 0.8 years in a year's time.

None of the groups had risen above the national sixteenth percentile on the average, but some had made encouraging progress.

Table 6 shows the average grade-equivalent scores from School B for the Reading and Total Arithmetic subtests of the ITBS. The current

TABLE 5

THREE-YEAR SUMMARY OF AVERAGE GRADE-EQUIVALENT SCORES
ON IOWA TESTS OF BASIC SKILLS: SCHOOL A

Grade	Reading			Total Arithmetic		
	1970	1971	1972	1970	1971	1972
3	2.5	2.6	2.4	2.8	2.8	2.6
4	3.0	2.7	3.1*	3.0	3.2	3.5*
5	2.8	4.1*	3.7*	3.4	4.1*	3.9
6	4.1	4.5	4.7*	4.4	4.8	5.2*

*Grade-equivalent score equals or exceeds the local district's average score.

TABLE 6

THREE-YEAR SUMMARY OF AVERAGE GRADE-EQUIVALENT SCORES
ON IOWA TESTS OF BASIC SKILLS: SCHOOL B

Grade	Reading			Total Arithmetic		
	1970	1971	1972	1970	1971	1972
3	2.6	2.6	2.4	2.8	2.8	2.6
4	2.8	2.8	2.9	3.5	3.1	3.2
5	3.9*	3.1	3.4	4.3*	3.8	3.8
6	4.8*	4.2	4.1	5.2	4.8*	4.2

*Grade-equivalent score equals or exceeds the local district's average score.

1971-1972 academic year average grade-equivalent scores are reported in the last column of each part of the table. None of the current grades matched or exceeded the local district's average grade-equivalent scores for the respective grades.

Progress of groups largely composed of the same pupils from year to year may be compared by reading the scores on the diagonal, down from left to right. The average progress in Reading from 1971 to 1972 was 0.6 years in a year's time; in Total Arithmetic, the average progress was 0.5 years in a year's time.

Conclusions

Question 1. To what extent have teachers adopted "open" teaching in activity-centered classrooms?

The longer a school's teachers have been involved in the project, the more extensively they have adopted classroom techniques consistent with the project's objectives. School A's teachers (with longest involvement) have adopted the use of activity centers and open classroom teaching styles to the greatest degree, although some are still using activity centers only occasionally. Few teachers yet appear to prescribe to individual pupils those tasks which engage the pupil in problem solving using data from the environment (natural or social).

Question 2. Have pupils improved in their concrete logical thinking capabilities?

All classes of pupils tested two times made improvements on Raven's Test of Logical Operations. However, learning due to the pre-test made further interpretation of these improvements uncertain in the context of differences among teachers.

Correlational relationships between the scores on Raven's Test of Logical Operations and achievement scores were substantial and statistically significant. Thus pupils who did well on one test were likely to do well on the others. Further, educational settings which helped pupils practice and apply concrete logical maneuvers might also have been consistent with helping pupils improve in basic skills.

Question 3. Have pupils improved in reading and mathematics achievement?

Although children in the project are generally proceeding at the local district's rate, their relative national standing has remained low. No marked trends were noted except that pupils' progress in School A was slightly better than progress of pupils in School B. These conditions would tend to suggest that the current procedures have had about as much direct effect on reading and arithmetic achievement (in Grades 3-6) as other projects implemented in the district.

SPECIAL MATHEMATICS PROJECT "SEED"
(PBRS #211-02-797)

This project report should be interpreted in the context of the "cluster overview" in earlier pages of this volume.

The Special Mathematics Project SEED provides college instructors, industrial mathematicians, or secondary school teachers to teach fourth-, fifth-, and sixth-grade pupils various mathematical concepts for 40 minutes a day, four days a week, for the school year.

It is believed that elementary pupils' interest in mathematics and mathematical achievements will be stimulated by exposing them to mathematics not usually taught in the course of study. This content is presented in a manner intended to engage pupils in the synthesis and analysis of patterns of mathematical relationships. Pupils are aware that the mathematics is at a high school and college level, and that their special teachers are mathematicians.

The project is implemented in eight schools: Belmont, Hunter, Overbrook, W. S. Peirce, Powel, Sheridan, A. Vare, and F. Douglass.

Objectives of the project are the following:

Objective 1. To provide special instruction for pupils by mathematicians.

Objective 2. To improve pupils' attitudes toward mathematics.

Objective 3. To increase pupils' mathematical skills and comprehension.

The previous evaluation of the project was inconclusive, and increased interest in mathematics by pupils was not demonstrated.

Current Evaluation Procedures

The focus of this year's evaluation has again been limited to pupils' attitudes toward mathematics and to teachers' and principals' attitudes about the effectiveness of the project. Two questions were raised:

1. Do pupils in the project have a more positive attitude toward mathematics than do comparable pupils not in the project?

2. What attitudes about the project's effectiveness do participating teachers and principals hold?

Question 1. Do pupils in the project have a more positive attitude toward mathematics than do comparable pupils not in the project?

Samples of participating and nonparticipating pupils from the same schools were chosen to respond to a questionnaire midway through the school year. Comparisons between the groups to assess significant differences in attitudes toward mathematics were planned. The questionnaire was scaled so that scores could range from zero (negative response) to 16 (positive response).

Items for the questionnaire were developed by the evaluators and approved by the project supervisors. Six classes representing grades 4, 5, and 6 at a comparison school were administered the questionnaire twice to assess its test-retest reliability over a period of one week. Its reliability was found to be .83, which was statistically acceptable.

Question 2. What attitudes about the project's effectiveness do participating teachers and principals hold?

The project was monitored periodically, and a questionnaire was administered to the teachers and principals to gather information about their attitudes toward the project. The questionnaire was developed by the evaluators and supervisors. The items are discussed in a later section of this report.

Results

Data relevant to Question 1. Do pupils in the project have a more positive attitude toward mathematics than do comparable pupils not in the project?

Table 1 displays the mean score of each class of pupils administered the questionnaire.

Although pupils in each class expressed all degrees of attitudes toward mathematics, the class means clustered aroung the neutral attitude value of 8. Thus, although the questionnaire could distinguish among pupils with different attitudes, on the average the pupils tended to be neutral in their attitudes.

An overall one-way analysis of variance showed that the participants' average score (8.15) was not statistically different from the nonparticipants' average score (7.67), although it was slightly higher. The lack of significant difference between the scores is due to the wide variance of scores in each class.

TABLE 1

AVERAGE "ATTITUDE TOWARD MATHEMATICS" SCORES OF
PARTICIPATING AND NONPARTICIPATING CLASSES

School	Grade	No. of Pupils	Average Score
(Participating Classes)			
A	6	33	8.64
B	4	20	7.85
B	4/5	31	9.00
C	5	25	7.64
D	6	27	7.70
E	5	65	7.68
All Participating Classes		161	8.15
(Nonparticipating Classes)			
A	6	31	7.06
D	6	30	7.93
E	4	24	8.13
All Nonparticipating Classes		85	7.67

Data relevant to Question 2. What attitudes about the project's effectiveness do participating teachers and principals hold?

In the evaluator's 10 monitoring visits, pupils were found to be active participants and enjoying their work. Content being taught included set-theory, Venn diagrams, exponents, permutations and combinations, matrices, and topology. The classroom organization was "whole class" in which pupils and teachers were interacting. The styles of presentation involved demonstrations and the questioning of pupils to help them seek and identify emerging patterns of relationships. Classroom teachers were always present and often taking notes. Teachers revealed that they sometimes used materials presented during special sessions.

TABLE 2

RESPONSES OF 19 TEACHERS AND PRINCIPALS TO THE SPECIAL MATHEMATICS PROJECT "SEED" QUESTIONNAIRE

Items	Agree		Disagree	
	Strongly	Mildly	Mildly	Strongly
1. My pupils generally like mathematics more than they did before their exposure to the project.	5	11	2	1
2. Fourth-grade pupils are too young for the project.	1	3	1	10
3. Only children who are mathematically talented should be in the project.	2	2	4	11
4. The special teacher was well received by my pupils.	8	7	3	1
5. Most of the pupils actually participated in critical thinking during the project sessions.	7	8	2	2
6. The mathematics taught was different from the normal course of study.	9	4	2	0
7. I have learned different ways to present mathematics to pupils because of the project.	5	10	1	3
8. I have a better understanding and am more appreciative of mathematics because of the project.	6	8	1	3
9. I think the project has real value for my pupils.	12	5	1	1
10. I would like to have the project continued in my class next year.	12	3	1	3
11. I recommend that the project be extended to other schools.	14	3	2	0
12. My pupils would benefit from a second year of participation in the project.	13	3	2	1

Table 2 displays the data gathered for each question on the questionnaire in terms of the frequency of responses made by the teachers and principals. Two of the eight schools participating did not respond.

An exploratory component of evaluation was added to examine what impact the project might have had on participants' arithmetic achievement. Available Iowa Tests of Basic Skills Arithmetic subtest scores were gathered for some participants from three of the schools for grades four and five. A comparison of scores from one year to the next revealed that the average pupil gained about 0.7 grade-equivalent years in a year's time (which is typical for Title I schools) although about 35% of the changes noted were at a rate of one or more grade-equivalent years in a year's time.

Conclusions

Question 1. Do pupils in the project have a more positive attitude toward mathematics than do comparable pupils not in the project?

Participants' attitudes toward mathematics were not statistically different from nonparticipatns' attitudes on the average, and both groups as a whole were generally neutral in their attitudes toward mathematics.

Question 2. What attitudes about the project's effectiveness do participating teachers and principals hold?

The majority of teachers and principals thought the project was worthwhile for their pupils. Most reported a desire to have the project continued in their classes and/or schools. Further, they felt that fourth-grade pupils were not too young, that it was not only the mathematically talented who benefitted, and that their pupils' attitudes toward mathematics had improved.

Evaluator's Comment

Even though the participants' attitude toward mathematics was not statistically more positive than nonparticipants' attitudes, the project appears to have provided an exceptionally interesting experience for pupils in mathematics. In the future, the project managers might reconsider the objective to improve pupils' attitudes toward mathematics, and instead consider only whether pupils enjoyed their experiences in the project.

COMPUTER-ASSISTED INSTRUCTION
(PBRS #211-04-560)

Computer-Assisted Instruction (CAI) is a program serving approximately 600 students per year in four secondary schools and the Computer Center. The information contained in this report was provided by the resident evaluator assigned to the project staff.

The system was designed to enable students to learn (e.g., biology, reading comprehension skills, and elementary mathematics) at their own pace (and level of difficulty) through an extensive branching system for providing required remediation to insure student success and/or enrichment. Complete records of each student's responses are maintained by the computer; these records permit detailed reports to be prepared to assist classroom teachers to individualize instruction.

The need to individualize instruction for the disadvantaged student was a major concern in the development of CAI. Teachers and administrators in schools attended by large proportions of target-area students have long realized that a highly structured approach which meets the specific learning needs of each student is needed. CAI can provide this, possibly enabling the disadvantaged student to be brought to the desired levels of achievement that will enable the student to take his rightful place in society.

The following are the primary objectives of CAI:

Objective 1. To develop instructional materials in the areas of biology, reading comprehension, and elementary mathematics using the computer as an aid to individualized instruction for target-area students, thereby allowing each student to proceed at his own pace until mastery is achieved.

Objective 2. To train teachers in the skills of managing an individualized classroom.

Previous evaluations have detailed the effectiveness of the computer as an educational device. In 1969 it was found that when the instructional computer system was implemented and functioning as intended, significantly greater achievement (i.e., when compared with a comparison group), as measured by the Gates-MacGinitie Reading Tests' Comprehension subtest, was indicated for students in the CAI reading course over students in the more traditional classes. Similarly favorable results were found in 1971.

A locally developed biology test was constructed to assess the CAI biology program. The results indicated that CAI was a more effective instructional method than the traditional approach for the available

sample. (The results for only one of the four schools were available because in the two participating junior high schools no comparison groups were available, and practically all students were rerostered midway through the school year in the other high school. However, it was pointed out that the CAI classes at both junior high schools achieved scores that were higher than almost all high school classes tested.)

The previous evaluations were consistent in their findings that student attitudes toward CAI were very positive. Analysis of responses on the Attitude Toward Computer-Assisted Instruction instrument showed that CAI: (a) enjoyed working at the computer, (b) liked the computer class better than regular classes, (c) learned more quickly by computer, (d) did their best work at the computer, and (e) felt satisfied with what they learned.

Teacher attitude toward the CAI system also was sampled in previous evaluations. Teachers generally reported that they liked to teach the computer class better than other classes. Most of the respondents thought that CAI had great potential and that more time, effort, and money should be invested in development. They also felt that CAI should be extended to subjects other than reading and biology.

Current Evaluation Procedure

This year's evaluation was focused on three questions:

1. Has the enabling objective that the computer system be operating 95% of the school day been realized?

2. After using CAI for several years, what are the teachers' feelings toward CAI?

3. What dissemination, if any, of the instructional materials developed by CAI has occurred?

Interviews with CAI teachers, supervisors, and administrators provided the answers to these questions.

Results

Data relevant to Question 1. Has the enabling objective that the computer system be operating 95% of the school day been realized?

The System Analyst for CAI reported that the Philco-Ford system was available 82.5% of the time of the average school day. The major factor contributing to the "downtime" of the computer was specified as the failure of the central processor. The figure reported takes into account communications problems experienced and malfunctions of the Student Audiovisual Interface unit. Therefore, the enabling objective was not achieved.

Data relevant to Question 2. **After using CAI for several years, what are the teachers' feelings toward CAI?**

Eight teachers who had more than two years' experience with CAI were interviewed and all were very positive in their expressed feelings toward the CAI approach. Most frequently mentioned was the extremely high motivation created in the participating students. The characteristics of the CAI system which contributed most to this motivation were reported to be the simulated dialogue established between the students and the computer, and the incremental learning steps which enabled most students to acquire a feeling of success. With respect to the latter, several teachers said that students enjoyed working with the computer because it did not criticize them. Most of the teachers also mentioned that students enjoyed having some degree of control over their learning through the individualized approach.

According to the eight teachers, individualized instruction was greatly facilitated through the use of the systems approach. Without the extensive record keeping and scheduling performed by the computer, the teachers thought individualized instruction would not be possible in their situation. Having been relieved of these clerical tasks, the teachers reported that they were able to provide more tutorial assistance to their students. Also, the continuous monitoring of the students' responses insured that needed remediation would be provided and/or prescribed--a task which would be extremely time-consuming for the teacher.

The majority of the teachers felt that the CAI students retained what they learned longer than did their traditional students of comparable ability. Learning was viewed by the students as being easier. The graphic capability of the cathode ray tube facilitated the learning of difficult concepts involving developmental, seriation, and/or movement sequences and, in general, provided visual learning not otherwise possible. The teacher also commented that the off-line workbook and materials were valuable aids to effectively managing and evaluating their individualized classrooms. They praised the support provided by the staff of the Division of Instructional Systems.

While the CAI teachers' feelings were positive toward the program as a whole, downtime was cited as the most negative experience encountered. Inability to proceed with work, incorrect test scores generated, and improper updating (students sometimes "lost credit" for what they had done if the computer went down later in the day) were sources of frustration to both teachers and pupils. However, the teachers were quick to point out that in spite of the frustrations, student attitudes toward the program remained remarkably high.

Data relevant to Question 3. What dissemination, if any, of the instructional materials developed by CAI has occurred?

The reading comprehension program of CAI was selected in April 1971 by administrators of District 2 as the reading program for their secondary students reading at the fourth-grade level. Ten schools participated during the past year in this program (Computer-Assisted Reading Development - CARD). Ranging from Grade 4 to Grade 12, approximately 2,000 students received individualized instruction. Preliminary analysis of standardized achievement test data in Table 1 indicated that CARD met its first-year objective (i.e., to have participating students gain one year in terms of the national norm). (A special report on the Vaux Junior High School reading program by James Scheib, District 2 Research Associate, has pointed out that the gain of approximately one year cannot be attributed entirely to CARD since students received reading instruction from other sources in the Schools.) Modifications of the program are being made to achieve even greater gains in the 1972-1973 school year.

TABLE 1

SUMMARY OF CARD 1971-1972 READING COMPREHENSION GRADE-LEVEL GAINS

Grade	Number of Students	1971 Grade Level	1972 Grade Level	Grade-Level Gain
7	207	4.2	5.1	0.9
8	279	4.9	6.3	1.4

Conclusions

Question 1. Has the enabling objective that the computer system be operating 95% of the school day been realized?

The Philco-Ford 102 computer failed to meet the established criterion of 95% availability. The system was available for students use 82.5% of the time.

Question 2. After using CAI for several years, what are the teachers' feelings toward CAI?

Teachers' feelings about CAI are positive. They emphasize the value of the system as a motivational device and as a facilitator of individualized instruction. They report superior retention in students participating in the program. The "downtime" of the computer -- the only negative feature mentioned -- is seen as a waste of the teacher's time and a cause of frustration to the students.

Question 3. What dissemination, if any, of the instructional materials developed by CAI has occurred?

The Reading Comprehension course of CAI was selected and implemented for its first full year into Philadelphia's District 2. All secondary schools in that district participated, with approximately 2,000 students ranging from Grade 4 to Grade 12 participating in individualized reading instruction. Mean student progress in the CAI Reading Comprehension course indicates that most students have achieved a year's increase in reading level during the school year.

ENGLISH AS A SECOND LANGUAGE: READINESS
(PBRS #221-06-504)

Centers have been established in eight schools which have a high percentage of Puerto Rican pupils. Each is staffed with one teacher assisted by two bilingual aides. Teachers are trained in working with language-development programs such as Distar, Hoffman Supplementary Bilingual Materials, and Bell and Howell Language Masters. Mathematics and science instruction emphasizes the inquiry method which may stimulate language development. Classes meet in two half-day sessions at each center.

The primary objective of English as a Second Language: Readiness (ESL-R) is to prepare Spanish-speaking children for the academic requirements of school by improving their language skills in English. It is believed that this will enable them to accomplish the essential tasks that enable one to learn how to read.

Current Evaluation Procedure

Elementary School Speaking Tests in English and Spanish, developed by R. Offenberg, R. Rodriquez, and A. Steinmetz used extensively in TITLE VIII evaluations, were administered twice during the 1971-1972 school year to the participants from four schools. Gains from pretest to posttest were compared. In addition, the Philadelphia Reading Readiness Test (PRT) was administered in English on an experimental basis to two ESL-R centers in order to assess reading readiness of pre-first graders.

Results

Summaries of pupil gain in English and Spanish are reported in Tables 1 and 2.

The average score obtained on the Philadelphia Reading Readiness Test for the ESL-R centers was 23.5 (N=50 children). This score was equivalent to the 71st percentile.

Conclusions

The experiences provided by the ESL-R project appear to have positive effects on pupil achievement as measured by the Elementary School Speaking Tests and upon pupils' readiness for future academic work as measured by the PRT. The sample of pupils from each school made highly significant gains. It is recommended that a longitudinal follow-up (i.e., first graders, etc.) be considered for future evaluations.

TABLE 1

SUMMARY OF ENGLISH ACHIEVEMENT AS MEASURED BY PUPIL GAIN ON THE ELEMENTARY SCHOOL SPEAKING TEST

School	Number of Pupils	df	t	Average Gain*	Statistical Significance
St. Bonaventure	37	36	9.32	15.1	High (P<.05)
St. Boniface	20	19	1.76	17.0	High (P<.05)
St. Edward's	20	19	1.59	12.8	High (P<.05)
St. Peter's	24	23	1.36	12.0	High (P<.05)

*For the 101 pupils, pretest scores ranged from zero to 44, with a mean of 23.7; posttest scores ranged from 18 to 50, with a 38.9 mean.

TABLE 2

SUMMARY OF SPANISH ACHIEVEMENT AS MEASURED BY PUPIL GAIN ON THE ELEMENTARY SCHOOL SPEAKING TEST

School	Number of Pupils	df	t	Average Gain*	Statistical Significance
St. Bonaventure	37	36	5.16	7.6	High (P<.05)
St. Boniface	20	19	7.41	13.0	High (P<.05)
St. Edward's	20	19	3.97	2.1	High (P<.05)
St. Peter's	24	23	5.41	5.2	High (P<.05)

*For the 101 pupils, pretest scores ranged from zero to 44, with a mean of 31.2; posttest scores ranged from 6 to 49, with a 38.1 mean.

INSTRUCTIONAL MANAGEMENT
(PBRS #211-03-846)

The Instructional Management program (IMP) is an individualized educational project designed to ensure that each student masters basic school objectives defined for seventh- and eighth-grade students. The information contained in this report was provided by the resident evaluator for IMP.

The Project

The underlying assumption of this program of individualized instruction is that every child can master materials which are presented in ways which conform to the unique learning characteristics of students.

There are three main components of the IMP system: an evaluation system which measures each child's learning characteristics and his mastery of the stated objectives; a curriculum bank of independent and semi-independent learning packets which are sequenced and coded as to objective and presentation style; and a computer management system which assigns materials which both are academically required and conform to the manner in which each student absorbs information best.

In contrast to the traditional classroom where students move as a group through a particular curriculum on a first-time basis, IMP students, by definition, are typically working on diverse curricula which they should have mastered already, but did not. Within this system of basic skills training, the speed and reliability of the computer are utilized to provide a structured, yet individualized, curriculum to students.

Objective 1. To prepare and disseminate an operational Instructional Management program to four target schools. (This was the primary 1971-1972 objective.)

Objective 2. To continue program operation at Conwell Middle Magnet School, as well as curriculum development and the initiation of formal program-evaluation activities on the part of the IMP Central Office.

Prior to commencing work within the program, three separate "profiles" are prepared for each student. Information necessary to assemble these profiles is obtained from a group-administered assessment package and existing school files. A summary of the student RDLC, Content-Area, and Skill-Area Profiles is provided in Table 1.

Current Evaluation Procedure

Systematic monitoring of the services rendered by the IMP system were tallied and described by the IMP research associate.

TABLE 1

STUDENT COGNITIVE PROFILES

Cognitive Profile	Type of Student Information Provided
1. RDLC Profile	Learning characteristics of students representing best presentation method. On the basis of their likely stable and significant influence upon the learning process the following variables are used: Reading grade level (3 levels are provided for) Difficulty level (2 levels are provided for) Learning-style modality preference (auditory, visual, and mixed or no preference) Cognitive style modality preference (concrete, abstract, and mixed or no preference)
2. Content-Area Profile	Academic needs of student in each of 40 behaviorally defined objectives within the four traditional content areas--mathematics, communication arts, science, and social studies. Student is classified as either having or not having attained levels of mastery defined in each content-area objective.
3. Skill-Area Profile	Needs of student in each of 29 behaviorally defined skill-area objectives. In contrast to the subject-specific content objectives, skill objectives address themselves to more general areas of cognitive and affective maturity, such as categorizing concepts, differentiating fact and opinion, and appreciating individual differences.

Results

During the 1971-1972 academic year, the Instructional Management program operated at five schools and serviced a total of 1,769 seventh- and eighth-grade children. At each of the participating schools, a class size of 25-30 students was maintained, with students scheduled into their respective IMP centers for two class periods per week. Schools new to the program limited enrollment to seventh-grade students who were expected to continue within the program during the 1972-1973 school year. A summary of persons directly associated with IMP at each of the five host schools is presented in Table 2.

TABLE 2

SUMMARY OF PERSONS RECEIVING IMP SERVICES

School	Participants		
	Students	Teachers	Aides
Conwell Middle Magnet School	239	1	1
Turner Middle School*	325	1	1
Rhodes Middle School* (2 centers)	610	8	2
Stoddart-Fleisher School*	390	1	1
Penn Treaty School*	205	3	1
Total	1,769	14	6

*Schools new to the Instructional Management program during the 1971-1972 academic year.

A considerable effort was required to expand this program of basic skills training from one to five schools, from a program enrollment of 239 to 1,769 students, while expanding the operating staff at the host schools from one teacher and one aide to fourteen teachers and six aides. When viewed within the context of an avowedly developmental program in transition to an operational status, the magnitude of this undertaking is

better appreciated. Preparatory to this dissemination effort, schools new to the program had to acquaint themselves with the curriculum, which had previously been developed in conjunction with the Conwell faculty, so that appropriate tailoring could be accomplished in time for center openings at their respective schools.

Lists of materials to be used by IMP center facilities, as well as instructional materials and equipment needed in support of the existing 585-packet curriculum bank, had to be changed, organized, and catalogued beyond what was required to support the overtly developmental program which existed at Conwell as of the close of the 1970-1971 academic year.

Two approaches to center staffing were undertaken. At Conwell, Turner, and Stoddart-Fleisher, a single teacher was assigned on a full-time basis to the schools' centers, while the center at Penn Treaty was staffed on a rotating basis each week.

Satisfied that the dissemination objective was being achieved and that program operation at the Conwell School was proceeding well, activities at the IMP Central Office during the second half of the school year were increasingly directed toward effecting (a) a major expansion of the curriculum bank, (b) a reduction in the time required to administer the pre-IMP test package, and (c) refinement of a model which will permit a rigorous evaluation of the Instructional Management program's approach to individualized instruction.

Conclusions

The primary and secondary objectives of the 1971-1972 school year, program dissemination, have been accomplished. While both the single-teacher and rotating-of-teachers methods of staffing offered certain advantages, our experience indicated that schools electing to staff their centers with more than one teacher on a rotating basis should assign not more than two teachers to the program. Our experience indicated that the Rhodes staffing arrangement (four teachers per center) was not conducive to effective center operation. Accordingly, during the 1972-1973 school year, each of the Rhodes centers will be staffed on a rotating basis by two teachers; all other schools participating in the program have elected to dedicate a single teacher to their respective centers. In retrospect, materials acquisition and the task of physically setting up centers proved to be a more involved process than had been anticipated. In anticipation of further program dissemination, a complete set of materials requisitions has been prepared by the IMP Central Office in an attempt to more effectively handle the establishment of additional centers. Refinements which have been effected in testing and scoring procedures will expedite the loading of student files, thereby freeing the IMP Central Office staff to lend greater on-site assistance to center operating staffs during the critical three weeks prior to and following the opening of new centers.

INTENSIVE LEARNING CENTER
(PBRS #211-02-843)

The Intensive Learning Center is an elementary school with nongraded house plans instead of the "normal" grading pattern. The participants are from Districts 5 and 7. The Center operates on a creative, discovery, and individualized principle of education for learning basic skills. The ILC staff develops and tests new curriculums, and the school serves as a resource center for elementary school teachers, administrators, and communities. This is the fourth year of operation.

There are three large houses in the instructional schema which service grades one through six, and there is a kindergarten-type Entry Class. Each of the houses has its own instructional approach, but some program designs are common to all houses, namely, individualized instruction, team teaching, nongraded organization, teacher/pupil ratio, and physical arrangements. Detailed project descriptions may be found in previous reports. See Evaluation of Intensive Learning Center, Title III, ESEA 1969-1970 for descriptions of the program, staffing patterns, student population, and their contrasts and comparisons.

The following are the major objectives of the project:

Objective 1. To improve pupil performance in basic skills at all grade levels as measured by locally-produced and standardized tests. It is expected that (a) 75% of the participating children will demonstrate one month's reading growth for each month of schooling, (b) the number of children who are two or more years below the national norm will decrease by 10%, and (c) the number of pupils below the 16th percentile will decrease by 10%, the number of pupils above the 50th percentile will increase by 10%, and the number of pupils above the 84th percentile will increase by 5%.

Objective 2. To improve the average pupil attendance rate by two percentage points over the previous year.

Current Evaluation Procedure

The 1971-1972 evaluation was focused on the following two questions:

1. To what degree have pupils improved in basic skills during the school year?

2. To what degree has the average daily attendance rate increased?

The instruments used to gather information needed to answer the first question are listed in Table 1.

TABLE 1

TESTS USED IN EVALUATION ILC

Median Grade Level of Group Tested	November Pretest	April Posttest
2	Stanford Achievement Tests: Reading and Arithmetic	(Same as Pretest)
3	Stanford Achievement Tests: Reading and Arithmetic Comprehensive Tests of Basic Skills (CTBS): Reading	Stanford Achievement Tests: Reading and Arithmetic Iowa Tests of Basic Skills (ITBS)
4	Iowa Tests of Basic Skills (ITBS) Stanford Achievement Tests: Reading and Arithmetic Comprehensive Tests of Basic Skills (CTBS): Reading	(Same as Pretest)
5,6	Iowa Tests of Basic Skills (ITBS) Stanford Achievement Tests: Reading and Arithmetic	(Same as Pretest)

To answer the second question, average daily attendance percentages were obtained from the school's records.

Results

Data relevant to Question 1. To what degree have pupils improved in basic skills during the school year?

The average achievement levels and grade-by-grade rates of progress are shown in Tables 2, 3, 4, and 5. Rate of progress in Reading for the third-grade pupils (Table 2) was not calculated because different tests were used.

TABLE 2

GRADE 3 SCORES AND GAINS

Item	Stanford Arithmetic (N=80)		CTBS and ITBS (N=63)
	Comprehension	Concepts	Reading
Pretest (November)	2.3	2.0	2.3 (CTBS)
Posttest (April)	2.7	2.5	2.7 (ITBS)
Gain (5 months)	0.4 (4 mo.)	0.5 (5 mo.)	
Equivalent Gain for 10-Mo. Year	8 Months	10 Months	(No comparison possible)

TABLE 3

GRADE 4 SCORES AND GAINS
(N=50)

Item	Stanford Arithmetic		CTBS Reading	
	Computation	Concepts	Vocabulary	Comprehension
Pretest (Nov.)	2.6	2.4	2.3	2.0
Posttest (April)	3.0	2.8	2.2	2.5
Gain (5 mo.)	0.4 (4 mo.)	0.4 (4 mo.)	-0.1	0.5 (5 mo.)
Equiv. Gain for 10-Mo. Year	8 Months	8 Months	No Gain	10 Months

TABLE 4

GRADE 5 SCORES AND GAINS

Item	Stanford Arithmetic (N=68)		ITBS (N=61)
	Computation	Concepts	Total Reading
Pretest (Nov.)	3.3	3.2	2.8
Posttest (Apr.)	3.9	4.6	3.7
Gain (5 mo.)	0.6 (6 mo.)	1.4	0.9 (9 mo.)
Equiv. Gain for 10-Mo. Year	One year and 2 months	Two years and 8 months	One year and 8 months

TABLE 5

GRADE 6 SCORES AND GAINS

Item	Stanford Arithmetic (N=39)			ITBS (N=32)
	Comput.	Concepts	Applica.	Total Reading
Pretest (Nov.)	4.0	4.7	4.3	4.0
Posttest (April)	4.3	5.1	4.5	4.4
Gain	0.3	0.4	0.2	0.4
Equiv. Gain for 10-Mo. Year	6 months	8 months	4 months	8 months

These data and others were examined to yield information about each of the subgoals under Objective 1. Results from each procedure are reported in turn.

a. Have 75% of the participating children demonstrated one month's improvement in reading for each month of schooling?

A sample (N=109) was used to answer this question. Pretest and posttest scores on the ITBS and CTBS for fourth, fifth, and sixth grades were compared. Of the 109 children in the sample, 48 (44%) had demonstrated at least one month's progress in reading for each month of schooling. (This was less than the 75% level which was sought.)

b. Has the number of children who are two or more years below the national norm decreased by 10%?

The ITBS and CTBS scores for the 109 pupils were used. At the beginning of the school year, 80 of the 109 (73%) were at least two years behind the national norm in reading skills. At the end of the year, 84 of the 109 (77%) were two or more years below the national norm. (Instead of decreasing by 10%, the number increased by four percentage points.)

Scores on the Stanford Arithmetic subtests were examined for a sample of 157 fourth-, fifth-, and sixth-grade pupils. At the time of the pretest, 72 (46%) of the pupils were two or more years behind the national norm in computation skills. At the time of the posttest, 85 (54%) were two or more years behind the norm. (The number increased by eight percentage points.) At the pretest time, 86 (55%) of the pupils were two or more years behind in concepts, and at the time of the posttest 53 (34%) were at that level of achievement or below. (The number was decreased by 21 percentage points.) Thus the objective to decrease the number of pupils two or more years behind in basic skills was achieved in some basic skill areas.

c. Has the number of children scoring below the 16th percentile decreased by 10%? Has the number of children scoring above the 50th percentile increased by 10%? Has the number of children scoring above the 84th percentile increased by 5%?

Pretest and posttest scores in Arithmetic are shown in Table 6. Only in concepts did the number of pupils scoring below the national 16th percentile decrease by at least the desired 10 percentage points. In neither computation nor concepts did the number scoring at or above the national 50th percentile increase by 10%. None of the pupils scored above the national 84th percentile on any of the Arithmetic tests.

Pretest and posttest scores in Reading are shown in Table 7. Neither the desired 10% reduction in the number of pupils scoring below the national 16th percentile nor the 10% increase in the number exceeding the national 50th percentile was attained. None of the pupils scored above the national 84th percentile on any of the Reading tests.

TABLE 6

PERCENTAGES OF PUPILS IN GRADES 4, 5, AND 6 WHO SCORED IN INDICATED NATIONAL PERCENTILE RANGES ON STANFORD ARITHMETIC TEST (N=157)

Subtest	Below 16th Percentile	16th to 49th Percentiles	50th to 84th Percentiles	Above 84th Percentile
Computation				
Pretest	77%	23%	0%	0%
Posttest	82%	16%	2%	0%
Concepts				
Pretest	67%	23%	10%	0%
Posttest	54%	40%	6%	0%

TABLE 7

PERCENTAGES OF PUPILS IN GRADES 4 AND 5 WHO SCORED IN INDICATED NATIONAL PERCENTILE RANGES ON STANDARDIZED READING TESTS (N=39)

Subtest	Below 16th Percentile	16th to 49th Percentiles	50th to 84th Percentiles	Above 84th Percentile
Vocabulary				
Pretest	69%	28%	3%	0%
Posttest	72%	28%	0%	0%
Comprehen.				
Pretest	82%	15%	3%	0%
Posttest	77%	15%	8%	0%

Data relevant to Question 2. To what degree has the average daily attendance rate increased?

Attendance records for the past two years yielded the data presented in Table 8.

TABLE 8

AVERAGE DAILY ATTENDANCE RATE OF ILC PUPILS

Month	1970-1971		1971-1972		Percentage-Point Increase
	Enrollment	ADA Rate	Enrollment	ADA Rate	
September	310	87%	347	90%	+ 3
October	326	82%	344	93%	+11
November	315	88%	357	92%	+ 4
December	317	89%	355	89%	0
January	314	88%	355	91%	+ 3
February	320	90%	353	91%	+ 1
March	321	87%	351	93%	+ 6
April	318	90%	351	93%	+ 3
May	315	89%	351	94%	+ 5
June	312	91%	348	93%	+ 2
Average	317	88.1%	344	91.9%	3.8

There was an increase in the average daily attendance rate for all months except December from one year to the next. On the average, the increase in attendance rate from 1971 to 1972 was 3.8 percentage points. This amount exceeded the goal of a two-percentage-point improvement.

Complementary Data

The project was monitored from December 1971 to February 1972 for a total of 8½ hours. Observations took place in the lower, middle, and upper houses, the DISC center, and the Instructional Materials Center. Conferences with the librarian, the nurse, and the coordinator of the Individualized Program Instruction (IPI) curriculum were conducted by the District 7 Research Associate. Findings are summarized in the following paragraphs.

Teachers and children had learned to accommodate themselves to the absence of walls between classroom areas. There appeared to be a casual atmosphere with little tension or high pressure. Groups moved in and out of the room without any apparent disturbance to neighbors working nearby.

Although housed in this open space, most teachers seemed to cling to the methodology of the self-contained classroom. The boundaries for each group were obvious; team teaching was not a regular practice.

Aides were generally utilized, but there was some concern expressed about the full utilization of staff specialists--especially the curriculum coordinator and librarian.

A dichotomy appeared to exist in the organization of the classroom. On one hand there was a highly structured program in the basic skills; on the other, a loose structure of the open classroom. The disparity was noted as a problem of concern.

All forms of instructional groupings and teaching techniques were observed. The upper and lower houses appeared to operate more smoothly than did the middle house.

Pupils seemed interested in their activities, engaged in "productive" efforts, relaxed, free, and willing to work in the nonrepressive atmosphere.

Records showed that, from September to May, an average of 96 visitors per month came to ILC. In some instances visitors had neglected to sign the register, but the number of recorded visits was sufficient to indicate that the Center was of interest to the community.

An attitude questionnaire (available in the Research Library of the Board of Education) consisting of 51 items was devised by the program

director and the Office of Research and Evaluation. It was administered to all 49 staff members from administrators to nonteaching aides and the secretarial staff. Those persons were asked to indicate their feelings (of agreement or disagreement) regarding statements about the students, teachers, and teaching. The responses indicated that (a) there was general satisfaction with the school and ILC curriculum, (b) the respondents felt that children could not learn really important things if left to themselves, (c) all of the respondents felt that children could learn basic skills and feel better about it when given choices within a well-defined range, and (d) many teachers felt the need to share ideas among themselves, and to have more curricular materials made available to them.

Conclusions

Question 1. To what degree have pupils improved in basic skills during the school year?

Pupils at ILC have made progress in the basic skills (with the exception of vocabulary skills in grade 4) which ranged from 0.4 years to 2.8 years in a year's time. Forty-four percent of the participants studied achieved at a rate of at least one grade-equivalent year in one school year. There have been no substantial increases in the number of pupils approaching the national norm except in arithmetic concepts and reading comprehension in some cases, and there have been no increases in the number of pupils achieving at a level above the national norm.

Question 2. To what degree has the average daily attendance rate increased?

The average daily attendance this year improved over the previous year by 3.8 percentage points. The average daily attendance was 92% of the pupils enrolled for the current year.

Evaluator's Comment

The statement of goals in different terms tends to be conflicting. That is, the participants could improve in their basic skills at a rate of one month for every month of instruction, but this rate would not be sufficient to decrease by 10% the number of pupils two or more years below their grade levels, nor to increase by 5% the number of participants above the national norm. The goals should be reconsidered, and perhaps priorities given to those which most accurately represent the intentions of ILC to improve pupils' basic skills.

LEARNING CENTERS
(PBRS #211-02-541)

The Learning Centers project consists of programs in ten elementary schools where children attend classroom Learning Centers from one hour per week to full-time.

The Learning Centers project attempts to determine how children can learn to use themselves and their environment to learn. The philosophic orientation of the Learning Centers assumes that cognitive growth occurs best when affective development precedes and establishes the foundation for intellectual skills. The materials, layout, and activities of the Learning Centers are similar to those of modern English primary schools.

The Learning Centers project is a product of the search for more effective education in the early grades. The approach taken here is to help children become their own best resource for the future, to help them learn best how to learn rather than to impart a body of factual knowledge. To do this, the teaching adult then must assume a role as similar to that of the student as possible. This means that the teacher engages in the same questioning procedure as the student in a parallel role rather than in an ordinate role. The teacher's direction of the student's learning becomes minimal and the goal is to move the student even more from this dependency until he is an efficiently independent learner.

The Learning Centers headquarters, located at the Durham School, provides materials and supportive services to the other Centers, and to affiliated teachers. In addition, the central staff conducts a number of staff development programs at the request of School District personnel. The headquarters also serves as a demonstration unit for local, national, and international visitors.

The Durham School also houses the project's Teacher Center which provides teachers an opportunity to prepare their own instructional aids at little or no expense to the individual teacher or school. The additional involvement of the teacher in building his own classroom presentations is expected to be an additional source of motivation for the students as well. The informal exposure to other teachers involved in making their own teaching devices is expected to provide for the exchange of knowledge not otherwise available to innovative teachers.

The project offers an internship program lasting from several weeks to several months as a training device for new personnel. Additional in-service staff development components include a weekly four-hour seminar and extensive field visits by the Director and Assistant Director.

The objectives of the program are to provide children in the centers with a rich education in a warm, friendly, caring atmosphere; to provide learnings not only in the "basic skills" but, additionally, in (a) becoming a contributing member of a group, (b) understanding people, (c) developing a sense of self and the relationship of self to the larger society, (d) how to make choices and to be self-directive in attaining knowledge, (e) aesthetics and creativity in the aesthetic realm, and (f) the area of physical, motor, and manipulative abilities.

Current Evaluation Procedures

The 1971-1972 evaluation was focused on describing the basic resource characteristics of the Learning Center grades at the Durham Center, as well as the reading achievement of those students. Answers to the following questions were sought:

1. In what ways is the Durham component of the Learning Centers project like the elementary units in the district in which it is located?

2. In what ways is Durham different?

3. In reading achievement, how does Durham compare with the district in which it is located?

This focus utilized a data base generated in common for all schools located in District Two. The current evaluation did not attempt to document the variety of social interactions and learning styles for which the dynamics of Durham's affective climate are carefully aimed. Rather, it sought to compare the resources and one kind of achievement with other schools in the same district which have the same charge to educate young children in Philadelphia. Any visitor to Durham can easily verify that the organizational use of basic resources (e.g., personnel, space) is different from that found in more traditionally organized schools.

This first look at reading results at Durham was not premature. Although the full Child Development Center concept was only in its second year of implementation, the teaching staff and self-contained elementary classes at Durham were organized some years earlier (1968). During the past two years the primary learning center classes have simply been extended through the fourth and fifth grades. The reading portion of the California Achievement Test was administered in conjunction with the evaluation of the District Reading Plan in spring testings 1971 and 1972.

Results

Data relevant to Question 1. In what ways is the Durham component of the Learning Centers project like the elementary units in the district in which it is located?

On two of ten characteristics generated from principals' reports for schools in District Two, Durham's elementary component was judged to be similar to the district's profile (See Table 1).

TABLE 1

SCHOOL CHARACTERISTICS OF DURHAM CENTER
GRADES 1 TO 5 SIMILAR TO DISTRICT TWO
(N=26 SCHOOLS)

Characteristic	Durham	Durham's Rank Among 26 Schools	District Average	District Low	District High
Teacher Absence	5.56%	14	5.47%	3.35%	7.95%
% Black Faculty	50.00%	13	45.76%	16.00%	89.00%

Over the eight-month period, September through April, teacher absenteeism at Durham was similar to the district average.

The faculty racial distribution at 50% black and 50% white is close to the district average of 46% black teachers in elementary schools.

Data relevant to Question 2. In what ways is Durham different?

Eight of the ten school characteristics generated were unlike usual conditions for elementary schools in District Two as shown in Table 2.

Durham is the smallest elementary school in the district, having less than one-third the enrollment of the average elementary school.

Durham's average class size is smaller than all but one of the other 25 elementary schools in the district.

TABLE 2

SCHOOL CHARACTERISTICS OF DURHAM CENTER
GRADES 1 TO 5 UNLIKE DISTRICT TWO
(N=26 SCHOOLS)

Characteristic	Durham	Durham's Rank Among Schools	Dist. Average	Dist. Low	Dist. High
School Size	214	26	775	385	1359
Average Class Size	27.9	25	30.4	27.8	32.2
Pupil Attendance	87.5 %	17	88.75%	84.13%	91.75%
Faculty Turnover	0.00%	26	21.41%	3.21%	54.08%
Pupil Mobility	8.88%	25	17.17%	8.36%	39.09%
Substitute Coverage	25.9 %	26	82.7%	52.9 %	97.1 %
Percent Black Pupils	60.80%	22	86.67%	15.20%	100.00%
Experienced Teachers	100.00%	1	83.64%	50.00%	100.00%

Pupil attendance at Durham is slightly lower than the district average; only eight of twenty-five elementary schools have a lower attendance rate; seventeen have a higher attendance rate.

Durham had no turnover in full-time teaching faculty over the past year while other elementary schools in the district averaged a change of over one-fifth of their faculty.

Less than nine percent of students who were enrolled in September 1971 differed from the April 1972 enrollment. This is a lower pupil mobility rate than all but one of the other twenty-five elementary schools in District Two.

Substitute service provided to Durham is the least of any elementary school in the district. Classes are covered by other Durham or Learning Center personnel as preferred by the project managers.

Although a specific formula for racial balance is employed at Durham, the balance attained is not the proportion found in District Two generally. While 61% of Durham's elementary population is black, that is 26 percentage points less than the 87% district average for elementary schools.

The percentage of teachers with two or more years of teaching experience is 100% at Durham while the district average for elementary schools is 84% "experienced" teachers.

Data relevant to Question 3. In reading achievement, how does Durham compare with the district in which it is located?

Tables 3 and 4 compare the Durham School with the District Two results for two years on the California Achievement Test of reading.

Over the last school year (1972) Durham second graders showed slight improvement. The percentage of students scoring below the national 16th percentile declined while the district's as a whole increased. With scores above the 50th percentile, however, Durham children fell from above the level of national expectancy (52%) to near the district's level (33%).

Third graders over the past year at Durham and the district showed essentially similar declines in achievement level as compared with the national distribution.

Fourth graders at Durham were superior to the district at the beginning of the year and showed greater improvement among lower-funtioning students than did the district as a whole.

The 1972 fifth-grade students at Durham have been clearly superior in their achievement patterns over the past two years, but showed an increase in the percentage of students scoring below the national 16th percentile, as did the district.

With such small grade enrollments, as shown in Table 5, and a very low pupil mobility, it may be concluded that the relatively stable achievement patterns at Durham are probably due to differences in ability of the children enrolled at the various grade levels. Fifth-grade students seem better, and the third grade lower-achieving as a group, than the other grades over two years.

2

TABLE 3

PERCENTAGES OF SAME STUDENTS TESTED 1971 AND 1972
WHOSE TOTAL SCORES ON CALIFORNIA READING TEST
WERE BELOW NATIONAL 16TH PERCENTILE

Schools	1971 Gr.1	1972 Gr.2	Change	1971 Gr.2	1972 Gr.3	Change	1971 Gr.3	1972 Gr.4	Change	1971 Gr.4	1972 Gr.5	Change
Durham	37%	33%	- 4	33%	38%	+5	35%	25%	-10	27%	36%	+9
District	24%	25%	+ 1	34%	35%	+1	41%	38%	- 3	43%	50%	+7

TABLE 4

PERCENTAGES OF SAME STUDENTS TESTED 1971 AND 1372
WHOSE TOTAL SCORES ON CALIFORNIA READING TEST
WERE ABOVE NATIONAL 50TH PERCENTILE

Schools	1971 Gr.1	1972 Gr.2	Change	1971 Gr.2	1972 Gr.3	Change	1971 Gr.3	1972 Gr.4	Change	1971 Gr.4	1972 Gr.5	Change
Durham	52%	33%	-19	24%	19%	-5	27%	25%	- 2	46%	46%	0
District	32%	32%	0	25%	18%	-7	17%	17%	0	19%	15%	-4

TABLE 5

NUMBER OF STUDENTS TESTED 1972 ONLY AND BOTH 1971 AND 1972

Schools	Grade 2		Grade 3		Grade 4		Grade 5	
	1972	Both	1972	Both	1972	Both	1972	Both
Durham	25	19	30	21	28	26	14	11
District	2549	1952	2674	2129	2634	2096	2336	1937

Conclusions

Question 1. In what ways is the Durham component of the Learning Centers project like the elementary units in the district in which it is located?

In only two of ten school characteristics compiled district-wide was Durham similar to average conditions in District Two. The rate of teacher absenteeism and faculty racial distribution were about at the average for the district.

Question 2. In what ways is Durham different?

In comparison with usual conditions in the district, many characteristics of Durham were superior. School and average class sizes were small, faculty turnover and pupil mobility were low, and teacher experience was high. Durham used few substitutes provided by the district, had a lower proportion of black pupils, and had a slightly lower attendance rate than most schools in the district.

Question 3. In reading achievement, how does Durham compare with the district in which it is located?

In most grades, but not all, the reading achievement is higher than the district norms. The differences in achievement by grade level were stable over two years and appear to be related to the selection of students. Some grades have better students than others, and with such small numbers of students these differences are more evident than in larger schools.

PENNSYLVANIA ADVANCEMENT SCHOOL
(PBRS #211-03-585)

The purpose of this project is to provide a viable educational program for average or bright students who are performing below potential and who are discouraged, recalcitrant, and negative in their attitudes toward traditional school.

The school operates two programs:

1. An Internal Program for 360 students which is maintained at 5th and Luzerne Streets. This component stresses the "open" education concept, which may be suitable for urban middle and junior high school students. Procedures are generated to disseminate and diffuse programs to other schools.

2. An External Program in which teams of planners (e.g., pupils, teachers, PAS staff) work in five Title I junior high schools. They attempt to design model programs for replication to other sites.

The key goals of this project are the following:

1. To increase attendance.

2. To improve proficiency in basic skills.

3. To develop critical thinking and decision-making skills.

4. To disseminate PAS techniques to the School District.

Current Evaluation Procedures

The 1971-1972 evaluation effort was implemented in three phases. Phase 1, an evaluation of the External Program, was contracted out to Dr. John M. Mickelson of Temple University.

An abstract of his report may be found in the Appendix to this report. The complete evaluation is on file at the Research Library (Board of Education Building, 21st Street and the Parkway). Phase 2, an evaluation of pupil performance in basic skills (Internal Program), was conducted by the project's evaluator and may be obtained directly from PAS. Phase 3 included project monitoring conducted by Research Assistants assigned to the Department of Instructional Systems Research. The Title I Observational Checklist was used to gather descriptive data from February until May. This information is summarized as "Results."

Results

Internal Program

Eighteen visits averaging 90 minutes each were conducted during the second half of the current school year at the 5th and Luzerne Streets site. Instructional aides were observed frequently (97%); materials and equipment were found to be accessible (89%) and appropriate (94%). Facilities were rated adequate or better (94%). The percentage of enrolled pupils who were present was 70% or better on 14 of the visits. Pupil attitude was judged to be good-to-excellent on 14 visits--on three visits the behavior observed was rated inadequate. The relative amounts of time devoted to various content areas are summarized in Table 1. The emphasis was placed on the development of basic skills--language arts (33%) and mathematics (27%).

The most common classroom structures observed were individual (45%) and small-group instruction (28%). The pupils most frequently used teacher-chosen materials (40%) rather than self-selected materials. The verbal interactions between teacher and pupils are summarized in Figure 1. The lessons were characterized by teacher behaviors which attempted to clarify the purpose of the lesson and focused attention on the task at hand. The teacher often played the role of resource person by providing facts, defining terms, reviewing past lessons, repeating key points, giving examples, and using specific illustrations. Techniques such as using pupil ideas, accepting pupil suggestions, praise, questioning, challenging pupils to support their ideas, and seeking alternative viewpoints were used with about the same degree of frequency. This would seem to indicate an effort toward the use of a variety of methods rather than a single approach to providing instruction.

TABLE 1

PERCENTAGE OF TIME DEVOTED TO VARIOUS CURRICULAR AREAS DURING 14 CLASSROOM OBSERVATIONS

CONTENT AREA	PERCENTAGE OF TIME
Reading	6.7%
Language Arts	33.3%
Social Science	13.3%
Science	16.7%
Mathematics	26.7%
Affective Domain	3.3%

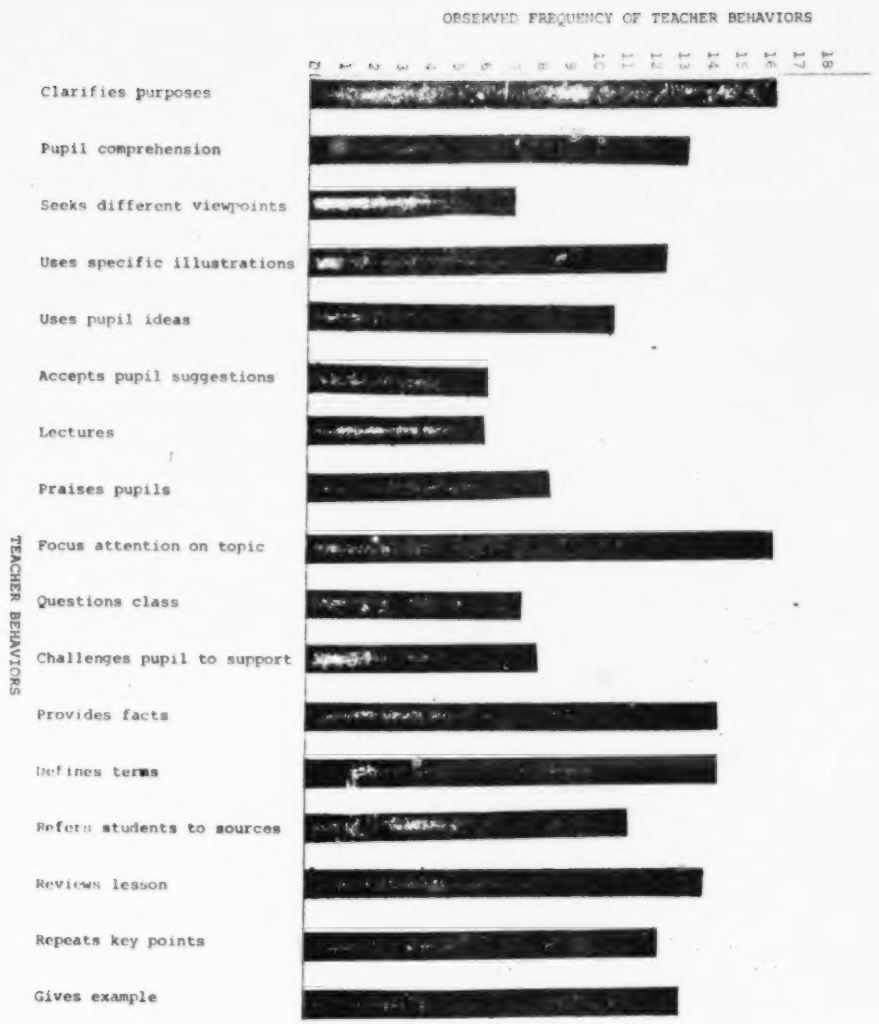

Fig. 1. Teacher behaviors observed during 18 observations of PAS Internal Program.

The pupils observed during instruction were described as "attentive and participating." They frequently asked and answered questions. Data dealing with pupil performance may be obtained from the project director. Therefore, no comparisons between the observed learning activities, interactions, attitudes, and pupil achievement are made in this report.

Data dealing with pupil attendance are summarized in Figure 2.

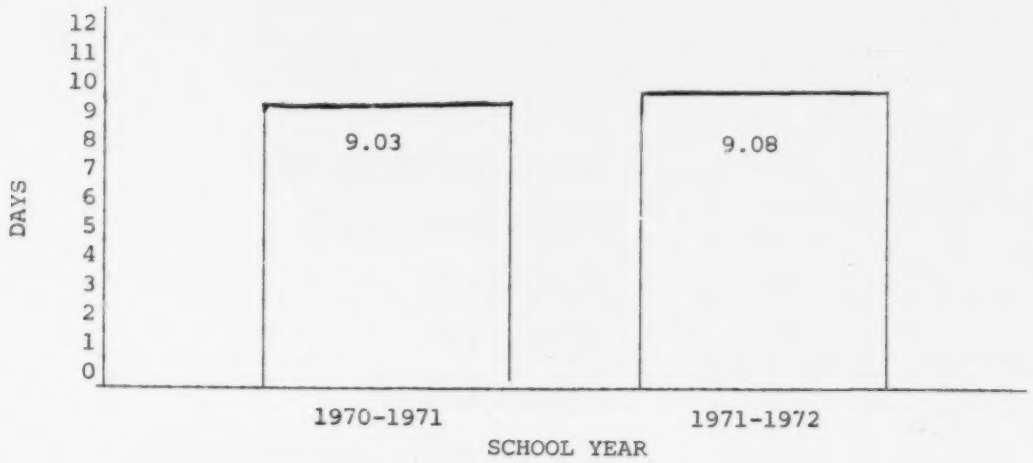

Fig. 2. Absence rate (average number of days per pupil) for 297 pupils during first semester of 1970-1971 and first semester of 1971-1972.

External Program

Fourteen visits were made to the five sites which participate in the PAS External Program (Beeber, Jones, Penn Treaty, Shoemaker, and Cooke Junior High). Instructional aides were in use on each visit (100%) and were judged to be appropriate to the activity (86%). Attendance ranged from 70% to 95% of the pupils enrolled. Students were cooperative, with a high degree of interest and involvement. Equal proportions of instructional time were devoted to science (25%), mathematics (25%), and language arts/reading (25%). The balance was distributed among art, music and affective experiences. "Whole class" instruction was observed on six visits (43%). Small-group instruction and individual instruction occurred on three (21%) and two (14%) visits respectively.

"Teachers addressing and verbally interacting with the pupils who were using many teacher-selected materials" was the most commonly observed instructional form (83%). The pupil modes of learning were "listening-reading-watching-speaking" (67%) rather than "writing or handling" (33%).

Table 2 summarizes the key ingredients which PAS indicated were essential for the operation of the External Program.

TABLE 2

SUMMARY OF 14 OBSERVATION VISITS TO THE FIVE SITES OF PENNSYLVANIA ADVANCEMENT SCHOOL EXTERNAL PROGRAM

Condition	Condition Present	Condition Absent
Team has required membership.	14	0
Team attended PAS summer workshop.	14	0
Team has common roster.	14	0
Team has three periods/week plan time.	9	5
Team shares adjacent classrooms.	12	2
PAS facilitator available.	14	0
Interim staff development.	14	0
Counselors attend team meeting.	12	2
One paraprofessional per team.	13	1
Teachers collectively evaluate pupils.	12	2
Team deals with disciplinary problems.	14	0
Team uses interdisciplinary approach.	10	4
Examples of pupils' products displayed.	14	0

Conclusions

1. The overall attendance at PAS has essentially remained the same over the last two years. Improvements reported in one team (i.e., a reduction of days absent from 9.1 to 7.3) was offset by increased absence (i.e., 9.7 to 10.5) in another team.

2. Information dealing with improved proficiency in basic skills may be obtained from the project director. Teacher behaviors conducive to pupil achievement were frequently observed in PAS classrooms.

3. Data dealing with the development of critical thinking/ decision-making skills are not currently available.

4. Dissemination to external sites is proceeding and most of the conditions needed to facilitate such activities were found to be present.

APPENDIX

ABSTRACT OF MICKELSON REPORT RE: PAS 1971-1972

Pennsylvania Advancement School

Since its inception in 1967, the Pennsylvania Advancement School (hereinafter referred to as PAS) has had two major purposes: the first, to initiate desirable changes in the educational programs of the Philadelphia Public Schools; the second, to serve as an innovative center. At the present time, "PAS consists of an internal experimental program; an intermediate, transitional program to refine experimental approaches and adapt them to use in public junior high schools; and an external staff development and follow-up program." (PAS: Year five, p. 2.) It is the latter, the External Program, with which this study is concerned.

The Problem

Specifically, the evaluator was charged with conducting "a descriptive evaluation of the External Program conducted by the Pennsylvania Advancement School in conjunction with Beeber, Cooke, Jones, Penn Treaty, and Shoemaker Junior High Schools."

Delimitation

The evaluation was limited to the organization and operating procedures of the External Program. Therefore, no attempt was made to assess the curriculum in the schools, or any materials which were produced by PAS for dissemination, or the personal effectiveness of any individuals. Data gathering, analysis, and the preparation of the report were limited to a maximum of 20 days.

Procedure

The interview, supplemented as needed by documentary materials, was the basic data-gathering technique employed. All interviewees were interviewed in person at least once. In some instances, supplementary information was obtained by telephone.

Summary and Conclusions

The (External) program . . . was designed to enable PAS to carry out its function as an innovative agent in the Philadelphia School District. Its immediate objectives were to modify the teaching style of

the teachers and to introduce a more open plan of classroom organization. Both were calculated to permit greater individualization of instruction. To accomplish these goals, the minischool structure and a staff development program were organized. The staff development program included the on-the-scene consultant services of the facilitator, a summer workshop, inservice institutes, and an end-of-the-year self-evaluation by each minischool.

The apparently casual manner by which the minischool came into being appears to be consistent with the means by which PAS has in the past approached any decision regarding the dissemination of materials or other curricular artifacts. The decision to disseminate is based upon the judgment and experience of interested teachers and facilitators. This in itself is not bad. However, there existed at the time of this survey no formalized procedure for reviewing and approving any matter proposed for dissemination.

The relation between PAS and the junior high schools is that of a guest in a home. All matters affecting the teachers and children, such as teaching and room assignments, placements, schedules, grouping, and so forth were the responsibility of the principal. His authority was in no way diminished by the presence of PAS. . . .

It should be noted that the innovative emphasis in the PAS External Program is on structure and teaching procedure rather than on curricular content. This sort of approach can have a greater immediate effect, is less expensive, and probably more readily accommodated by the existing system than one emphasizing curricular content. There is the danger, of course, that in placing the emphasis primarily on the structural and procedural components, teachers may end up doing the wrong thing better. Nevertheless, it is the judgment of the evaluator that PAS has exercised wisdom in employing the minischool format as a means of disseminating innovative practices. It combines structure with flexibility and an almost infinite capacity for expansion. It in no way inhibits future innovations in content or instructional practice.

General Recommendations

1. The External Program should be continued using the present minischool format.

2. Procedures for decision-making concerning that which is to be disseminated should be formalized.

3. Channels for regular interaction between the PAS Internal and External Programs should be established.

4. It is recommended that the current organizational relationship between PAS and the junior high schools be continued.

PUERTO RICAN ORIENTATION
(PBRS #211-06-509)

This is a staff development project designed to provide teachers with background information about Spanish-speaking Americans with respect to their history, geography, and cultural influences.

The Project

The Puerto Rican Orientation project was designed to acquaint teachers in inner-city nonpublic schools, having high percentages of Spanish-speaking children enrolled, with the economic, social, and historical forces which influence the children they serve.

The project was planned by a committee consisting of representatives of the Superintendent's Office of the Archdiocesan School System of Philadelphia, the Casa del Carmen, members of faculties of schools in areas with high concentration of Spanish-speaking children, the Director of Foreign Language Instruction, and the Coordinator of Nonpublic Projects of the School District of Philadelphia.

The project convened on four days, as follows:

September 1, First Session, Elkins Park Retreat House, 9:30-3:00

1. Introductory remarks by Monsignor Francis B. Schulte, Archdiocesan Superintendent of Schools.
2. Lecture, "Understanding the Puerto Rican Child" by Dr. Braulio Montalvo.
3. Lecture, "Understanding the Puerto Rican Family" by Sister Francis Georgia Vincente, O. S. F.
4. Small-group discussions led by parents from the Spanish-speaking community.
5. Film.
6. Question period.

September 2, Second Session

1. Lecture, "Survey of Puerto Rican History and Culture" by the Reverend Thomas Craven, Director, Casa del Carmen.

2. "Introduction to Latin American Music and Dance," Sister Francis Georgia Vincente and local Puerto Rican musicians.

3. Small-group discussions led by parents from the Spanish-speaking community.

4. Question period.

5. Completion of questionnaire.

6. Display of instructional materials.

Follow-up Sessions

In addition to the initial workshop, two follow-up sessions were held at the Incarnation School on January 17 and 18, 1972. They were held between 1:30 and 4:30 and were attended by 60 of the teachers who had been present at the September activities. The follow-up sessions were developed to acquaint the teachers with specific problems of the classroom teacher in the instruction of the Spanish-speaking child and techniques for improving the children's achievement.

The lectures during these two days were by Dr. Virginia Allen of Temple University's TESOL program, who spoke on "Speech and Reading Problems of the Puerto Rican Elementary School Child," and Sister Francis Georgia Vincente, who spoke on "The Development of Curriculum for Spanish-speaking Children." In addition, question and answer periods were held. Bibliographies and materials on drugs (in Spanish) were distributed. At the conclusion of the meetings, the teachers were invited to remain for a dinner in which Spanish-speaking parents served a typical Puerto Rican meal.

Current Evaluation Procedure

There were 64 staff members of inner-city nonpublic elementary schools present for the initial two-day workshop. At the conclusion of the second day's activities, they were given a questionnaire which assessed their perception of their workshop experiences, of their attitudes, and of their classroom practices.

Participants were asked to respond to seven items: Lecture #1, group discussions, film, Lecture #2, Lecture #3, materials display, and the songs and dances. They were asked to rate each of the seven items on a 5-point scale to show the extent to which they had reflected on their classroom attitudes and practices:

1. None.

2. Some reflection.

3. The amount normally caused by such experiences.

4. More than the usual amount.

5. Much examination of present attitude and practice.

Results

A summary of the ratings given to each activity by the workshop participants is provided in Table 1. The numbers represent the number of participants who chose a given rating category. Forty participants responded to the questionnaire.

TABLE 1

SUMMARY OF PARTICIPANTS' RATINGS OF THE WORKSHOP ACTIVITIES (N=40)*

	Amount of Reflection Generated by Activities				
Workshop Activities	5 "Much"	4 "More Than"	3 "Normal"	2 "Some"	1 "None"
Lecture #1	28	7	1	2	1
Group Discussions	7	10	8	8	3
Film	7	9	10	8	1
Lecture #2	26	4	3	1	1
Lecture #3	22	8	0	1	1
Materials Display	15	6	10	5	0
Songs and Dances	17	8	7	5	0

*Some respondents omitted items on the questionnaire.

Conclusions

The most positive aspects of the initial sessions reported by the respondents were the lectures, songs/dances, and materials displays. Discussions and the film were perceived as having the least impact upon the participants.

The project appears to be providing the kinds of activities which may acquaint teachers of Spanish-speaking pupils with background information about the history, geography, and cultural influence of the children they serve.

Although all activities were viewed positively, the group discussions and films were initially perceived as being slightly less relevant than the other workshop experiences. Future evaluations will include an assessment of the follow-up sessions in order to determine the activities which are of greatest long-term value to the participants.

READING SPECIALIST TRAINING AND DEVELOPMENT
FOR INNER-CITY TEACHERS
(PBRS #211-18-849)

The project was designed to train university graduate students as reading specialists and to assign the students to the Drew School as teachers of reading. The project was implemented by the University of Pennsylvania and the School District of Philadelphia.

The Project

Twelve highly qualified graduate students were selected from a large number of applicants. Two of them graduated in December and were succeeded in their classrooms by two who began their work as co-teachers in January. In January two of the coteachers shifted their work to the Reading Laboratory of the University City High School.

The coteachers spent six hours per week in their respective classrooms--1½ hours for each of four days. The pattern and details of their work were developed jointly with their coteachers and varied somewhat from classroom to classroom. A typical arrangement was for a coteacher to work with a group from the class in the Instructional Materials Center one day a week; one day was spent teaching specialized skills to a group part of the time and with the entire class for the remainder of the time on general reading activities; and on two of the days the coteacher concentrated on aiding pupils who were working at the lowest reading levels.

The coteachers met either Dr. Botel or Dr. Preston, first on a weekly basis, and later biweekly, to discuss the teaching problems they were encountering at Drew School, and to share ideas regarding materials and techniques.

The training procedures at the University, in addition to the standard course work, consisted of the following learning experiences:

1. Roundtable discussions with clinical psychologists,

2. Participation in a readability workshop,

3. Participation in demonstrations of new instructional materials,

4. Participation in a study-skills course, and

5. Orientation through instruction and practice to the reading specialist's role as a resource person to work with teachers as consultants and in staff development programs.

The major objectives of the project were the following:

1. To increase the number of qualified reading teachers available to the School District through an on-site intern-training program for prospective graduate students matriculating in certified reading programs at local universities.

2. To provide supportive and instructional services to urban elementary school children through the use of reading interns who will assist in (a) the classroom management of reading, (b) the individualization of reading instruction, and (c) the cross-fertilization of theoretical and practical considerations in the art of teaching reading.

Current Evaluation Procedure

A descriptive evaluation report was prepared by the project director.

Results

The coteachers maintained a high degree of enthusiasm and commitment throughout the year. One coteacher, for example, often remained with her class for three hours instead of the normal 1½ hours.

Reports of exceptional progress in reading and language were made by all coteachers. Thus, one second grader, a nonreader in September, by May was working in Book 4 of Sullivan. Another child who started the year as a nonreader and was defeated, bored, and withdrawn, by May was reading in Book 5 of Sullivan, participating actively in class discussions and other activities, and enjoying reading aloud to others.

Conclusions

Because of a lack of scientific controls in the project, the conclusions cannot be stated with precise confidence. Rather, the conclusion which was reached was based on the project director's observations.

The project director concluded that it is possible to establish a successful new learning environment. The learning environment is established when a regular classroom teacher is systematically aided throughout the school year by a carefully selected, dedicated graduate student who takes his training seriously, and professionally brings to the work a broad knowledge of techniques and materials.

SUMMER ADVENTURES IN LEARNING
(PBRS #211-06-645)

The Summer Adventures in Learning (SAIL) project is a compensatory education program sponsored jointly by the School District of Philadelphia and the Archdiocese of Philadelphia. It is designed to aid target-area pupils in grades two through six who are one year below the reading level for their grade. It operates in six centers in which children are instructed in groups of four by carefully selected high school pupils under the direction of an experienced teacher and two associate teachers.

In addition to the tutorial, the program provides an active art project, field trips, and a camping experience.

Prior evaluations of Project SAIL may be obtained from the Coordinator of Nonpublic School Projects. The data contained in this report were provided by the project director.

Current Evaluation Procedure

The 1972 evaluation was designed to provide data on objectives in four areas: (a) reading achievement, (b) motivational improvement, (c) language-arts achievement, and (d) cultural sensitivity. The following questions were investigated:

1. Do participating children significantly improve in reading achievement?

2. Do participating children display acceptable motivation for learning?

3. Do participating children significantly improve in language-arts skills?

4. Do participating tutors and pupils appear to be sensitive toward each other's racial and religious background?

Results

Data relevant to Question 1. Do participating children significantly improve in reading achievement?

Reading achievement was measured in two ways: (a) a pretest and a posttest (The Wide Range Achievement Test) were administered to each child; and (b) if a child was able to perform at 80% correct on the questions at the end of a Reader's Digest story, that child would be advanced to the next book level. Each tutor was required to keep an

accurate log of the latter. Pretests and posttests were administered and recorded by the Center principal. Results of the testing revealed that 63 of the 161 children (39%) advanced at least one book level during the summer while only five (3%) regressed. All others (58%) completed the summer in the book in which they began. Results of the Wide Range Achievement Test showed a beginning average reading level of 3.9 and a final average of 4.5--a gain of 0.6 GE.

Data relevant to Question 2. Do participating children display acceptable motivation for learning?

Attendance figures were utilized as indicators of motivation to learn. The average daily attendance rate for the overall program was 80% (N=329 children).

Data relevant to Question 3. Do participating children significantly improve in language-arts skills?

A 15% sample was taken at each center and judged by the project director and the associate teachers. The following areas were selected for judging: (a) spelling, (b) punctuation, (c) grammar, and (d) creativity. In addition, staff training sessions were conducted to insure consistency among raters.

Of the 51 students in the sample, 30 (59%) showed positive growth between July 7 and July 28. Eighteen pupils (35%) maintained their initial level and three (6%) regressed.

Data relevant to Question 4. Do participating tutors and pupils appear to be sensitive toward each other's racial and religious background?

A direct attempt was made to sensitize the students and tutors at "Brotherhood Sessions"--programs held at a three-day, overnight camping experience at Camp Neumann in Jamison. The staff rated this "youth-to-youth" approach positively. Relationships between pupils and their student-tutors were judged to be harmonious.

Conclusions

Question 1. Do participating children significantly improve in reading achievement?

The majority of the children show improvement with respect to reading skills. On the average, participants improved by one-half grade level (0.6 GE).

Question 2. Do participating children display acceptable motivation for learning?

Motivation was exemplified by attendance patterns indicated that the children wished to come to the center and participate in the learning activities.

Question 3. Do participating children significantly improve in language-arts skills?

Samples of children's writing revealed that about two-thirds of the children improved in language-arts skills.

Question 4. Do participating tutors and pupils appear to be sensitive toward each other's racial and religious background?

Relationships between tutors and pupils were judged to be harmonious.

SUMMER READING READINESS
(PBRS #211-06-651)

The Summer Reading Readiness project (SRRP) is a compensatory education program sponsored jointly by the School District of Philadelphia and the Archdiocese of Philadelphia. It provides learning experiences that are the foundations for learning to read. The project operated in 46 elementary schools and involved approximately 40 children and three teachers per school over a six-week period during the summer.

Current Evaluation Procedure

The 1972 evaluation was designed to provide data on children's progress toward mastery of reading-readiness skills. The following question was investigated:

Question: Do participating children significantly improve in reading readiness?

Two instruments were used to gather data on pupil progress toward mastery of reading-readiness skills: (a) a Reading Readiness rating form for first graders, and (b) the Philadelphia Reading Readiness Test for kindergarten and nonkindergarten children in the project. (Copies of both instruments are on file in the Research Library of the Board of Education.)

Results

Data relevant to Question: Do participating children significantly improve in reading readiness?

The Reading Readiness rating form and the Philadelphia Reading Readiness Test were used in a pretest-posttest design in order to analyze whether significant gains were made toward the mastery of reading-readiness skills. A *t* test was used to test whether the means were statistically different.

The Philadelphia Reading Readiness Test results indicated that children had made significant gains toward mastery of reading-readiness skills as indicated in Table 1.

Results on the Reading Readiness rating form indicated that kindergarten-age children also showed a slight, but significant, improvement toward the mastery level as presented in Table 2.

The rating scale means indicated that the children had progressed from slightly-below-average to average in reading-readiness skills.

TABLE 1

SUMMARY OF PHILADELPHIA READING READINESS TEST RESULTS

Item	Data
Number of Children Tested	148 each time
Pretest Mean Score	20.9
Posttest Mean Score	23.8
Gain	2.9*

*Statistically significant at the .01 level.

TABLE 2

SUMMARY OF RATINGS OF READING READINESS

Item	Data
Number of Children Rated	Pretest 131, Posttest 128
Pretest Mean Rating	2.76
Posttest Mean Rating	3.18
Gain	0.42*

*Statistically significant at the .01 level.

Conclusions

Question: Do participating children significantly improve in reading readiness?

Gains noted on the Philadelphia Reading Readiness Test and the Reading Readiness rating form indicate that a significant improvement of the children has occurred.

SUMMER SPECIAL EDUCATION
(PBRS #211-05-724)

The Summer Special Education project is a multifaceted project involving the continuation of educational experiences into the eleventh month.

The Project

The project provides remediation services and on-the-job experiences during the summer in order to maximize retention of skills which might otherwise be forgotten. Four schools served as centers, each of which services a special education group (e.g., classes for emotionally disturbed, classes for visually handicapped pupils, classes for retarded trainable, and classes for the hard of hearing). In addition, a summer work program for special education pupils was carried over from the 1971-1972 school year with the aid of one job coordinator.

Current Evaluation Procedure

A descriptive evaluation provided by the project director was used to describe and assess the services received by special education pupils.

Results

An average daily attendance of 92% indicated that the students at the four schools were available to receive the special remediation services.

In the work program, 196 of 200 students received the services provided by the job coordinator.

Conclusions

Special education students received continued education in four schools and 180 of the original students (16 more added during summer) continued their on-the-job training programs.

TEACHING BASIC READING SKILLS--A SYSTEMS APPROACH
(PBRS #211-02-847)

Teaching Basic Reading Skills--A Systems Approach, otherwise known as the Systems Approach to Beginning Reading (SABRE) project, is currently being developed by the Division of Instructional Systems as an alternative approach to teaching basic reading skills to beginning readers (Grades 1-3) using a systems approach to the managing of the learning materials used in reading. Computer technology is being integrated with the Reading Skills Center approach, thereby facilitating individualization of instruction within a system of mass education. During the first developmental year approximately 40 children from the Lower House of the Intensive Learning Center participated in the program and provided valuable field-test data.

The Project

The target population for the SABRE project is the group of urban school children classified as "beginning readers" in Grades 1-3. The older children in this group have characteristically had little success in learning to read. This has been attributed to a lack of interest on the child's part in the process of learning. This is thought to be coupled closely with a lack of interest in the instructional materials used in that process. To remedy this situation, SABRE utilizes an individualized approach to reading that will eliminate from the start the potential threats to learning. Failure seems to be virtually impossible due to the design of the instructional program that consists of discreet learning tasks in reading, each of which is subdivided into several incremental learning steps. Constant monitoring of the children's responses and provision of necessary remediation and reinforcement by the computer insures that every child will learn each task at his own rate. In addition, materials and equipment have been selected with the intention of (a) providing multimodal and multilevel instruction in a wide variety of reading skills and (b) appealing to the interests of the urban child.

The overall objectives established for the first year of operation of SABRE were these:

Objective 1. To identify basic reading skills in terms that would facilitate teaching beginning readers to read.

Objective 2. To develop a computerized record-keeping and report-generating system for management of individualized instruction.

Objective 3. To develop a series of audio-tape cassettes to be synchronized with a cathode-ray screen presentation for instruction in the decoding and comprehension skills identified.

Objective 4. To purchase or develop a wide variety of instructional alternatives to provide remediation of deficiencies and/or enrichment, and to maintain a high level of motivation in beginning readers.

Two major components are identifiable within the computer system being developed: instructional-activities functions and record-keeping/scheduling functions.

The instructional component of SABRE is divided into three "areas" of activities, patterned after the Reading Skills Centers:

Area 1: Decoding-Skills Development teachers recognition of letters and words; word-attack skills learned are also reinforced.

Area 2: Comprehension-Skills Development teaches how to understand the meaning of the printed word.

Area 3: Literature Appreciation enriches the literacy background of the student through story telling, poetry reading, listening activities, and activities related to student experiences.

Every SABRE student participates in the three activity areas each day, spending approximately twenty minutes in each area. Figure 1 shows the instructional sequences by areas and by mode of instruction (computer or "off-line").

The record-keeping/scheduling component of the computer system facilitates the articulation of teacher, students, and instructional materials. It generally relieves the teacher from the clerical burdens both compiling an individualized schedule for every child and maintaining an ongoing progress evaluation for each child.

Current Evaluation Procedure

Since the SABRE project is still in the developmental stages, the evaluation efforts during the initial year focused on formative aspects. The descriptive material contained in this report was provided by the resident evaluator on the project staff. The degree to which the four objectives specified above were met constitutes the content of the remainder of this report.

Results

Status of Objective 1. Identification of Basic Reading Skills

The Read On - Criterion Tests in Reading Skills, published by Random House, was selected by the SABRE staff as the measure of student progress. It is a criterion-reference measuring program for sixty key reading skills on four levels of difficulty. Administered by audio-tape cassette, Read On covers five major skill areas: (a) auditory/visual discrimination, (b) phoneme/grapheme correspondence, (c) structural analysis, (d) word recognition, and (e) comprehension.

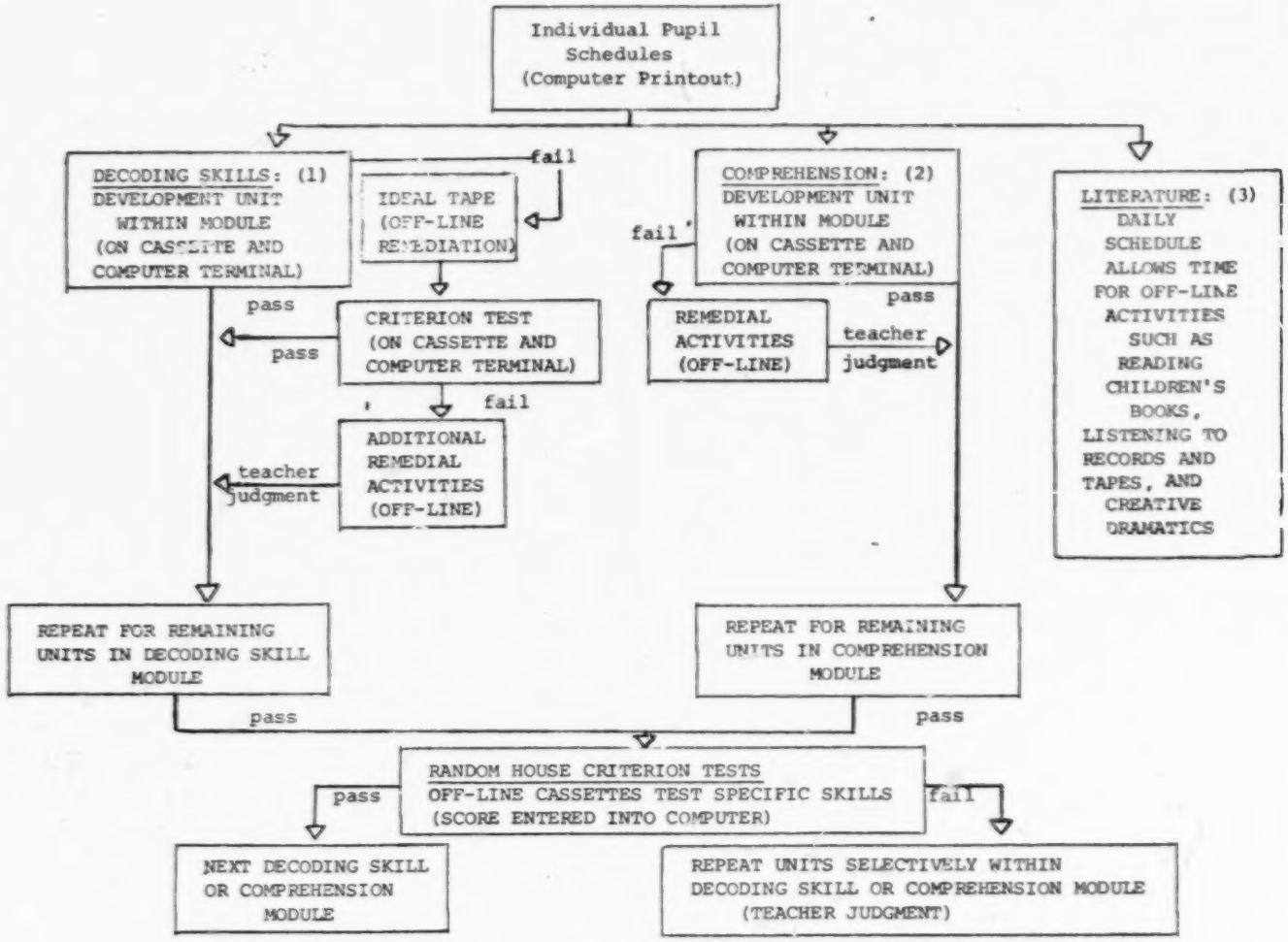
Individual Pupil Schedules (Computer Printout)
DECODING SKILLS: (1) DEVELOPMENT UNIT WITHIN MODULE (ON CASSETTE AND COMPUTER TERMINAL)
fail
IDEAL TAPE (OFF-LINE REMEDIATION)
pass
pass
CRITERION TEST (ON CASSETTE AND COMPUTER TERMINAL)
fail
ADDITIONAL REMEDIAL ACTIVITIES (OFF-LINE)
teacher judgment
COMPREHENSION: (2) DEVELOPMENT UNIT WITHIN MODULE (ON CASSETTE AND COMPUTER TERMINAL)
fail
pass
REMEDIAL ACTIVITIES (OFF-LINE)
teacher judgment
LITERATURE: (3) DAILY SCHEDULE ALLOWS TIME FOR OFF-LINE ACTIVITIES SUCH AS READING CHILDREN'S BOOKS, LISTENING TO RECORDS AND TAPES, AND CREATIVE DRAMATICS
REPEAT FOR REMAINING UNITS IN DECODING SKILL MODULE
REPEAT FOR REMAINING UNITS IN COMPREHENSION MODULE
pass
pass
RANDOM HOUSE CRITERION TESTS OFF-LINE CASSETTES TEST SPECIFIC SKILLS (SCORE ENTERED INTO COMPUTER)
pass
fail
NEXT DECODING SKILL OR COMPREHENSION MODULE
REPEAT UNITS SELECTIVELY WITHIN DECODING SKILL OR COMPREHENSION MODULE (TEACHER JUDGMENT)

Fig. 1. Flowchart of the SABRE Program.

To provide both a framework for the reading instruction in the SABRE center and also some coordination between the center and the ILC classroom instruction the Stern Structured Reading Series was selected. The Ideal Structured Reading Tapes, it was decided, would provide remedial and reinforcement activities that closely corresponded to the skills taught in the Stern books.*

Status of Objective 2. Development of Computer-based Record-keeping/Report-generating System

The following reports have been developed and are available to the center teacher for planning and management of the SABRE Center:

1. Daily student progress report. Details units and segments of units accessed by each student and the results of the student/computer interface.

2. Individual student progress report - Decoding-Skills Development units. Provides the center teacher with the dates when each unit is taken and when passed for each student. Report includes criterion test results.

3. Individual student progress report - Comprehension units. Lists dates when units are taken indicating passes.

4. Individual student "Read On" criterion test record. Prints dates when each test is taken indicating passed tests, for each student.

5. Individual student record - the Botel Phonics Inventory. Indicates either pass or fail for each of the 64 items for each student.

6. Individual student record - (IRI). Includes identification of book series, level, number of word errors allowed, number of word errors made, and success in comprehension skills.

7. Individual student record - Alphabet Mastery Test. Indicates either pass or fail for individual lower- and uppercase letters.

8. Summary of remedial off-line activities for individual students. Specifies the number of activities assigned for each unit.

9. Summary of off-line activity frequency. For each unit (by class, school, or system) the activity most frequently assigned is identified along with the number of times.

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*NOTE: Ida Kravitz of the English Education office provided indispensable counseling and advice in the selection procedure.

Reports are also being developed which will provide the curriculum writers with summaries of all students' responses to each item and total unit scores. These reports will be available for the Decoding and Comprehension development tapes, the Criterion tests and the Read On Criterion-reference tests.

The scheduling function of the computer system has been developed and revised as needs have dictated. A computer-printed roster specifies the activities assigned for each child in the respective areas. This roster is determined by past pupil performance and teacher input on the previous day. Initially, the teacher had to wait until morning to see that day's roster, but feedback from the center staff indicated that this was inadequate. Revisions were made so that the teacher will now be able to have the next day's roster printed shortly after a class has ended.

Status of Objective 3. Development of Audio-tape cassettes and Associated Visual Presentation by the Computer

Initially the SABRE staff divided each Stern book into a series of more or less discrete incremental learning steps, identified as "units." The units cover a varying number of pages in Stern depending on the level of difficulty of the material. For every unit identified a "development" tape (or tapes) script had to be created and taped and the associated cathode-ray display programmed on the computer. In addition, a "criterion test tape" had to be developed for each unit to evaluate a student's remedial activities in the decoding area. Management of instruction in the alphabet is also being recorded on tape to be used off-line.

The general format followed in creating the various tapes is illustrated in Figure 2. Slight variations in this format were made where the instructional situation required. Typically, a tape would contain a sequence of from eight to twelve of these instructional cycles, focusing on either the development or the evaluation of a specific incremental reading skill. Imbedded within each unit, sometimes involving as many as eight tapes, ten "test" questions are spaced to evaluate pupil progress, the computer either passing the student or prescribing remediation (ideal tapes and/or other off-line activities.) The ten test questions were also taped together without instructional sequences to produce the "criterion test" tapes used to evaluate the efficacy of the remedial activities assigned.* Table 1 shows the number of tapes actually developed in each area and the number to be completed by Fall, 1972.

*NOTE: See Figure 1 for a graphic representation of the relationships between the various elements within the SABRE instructional component.

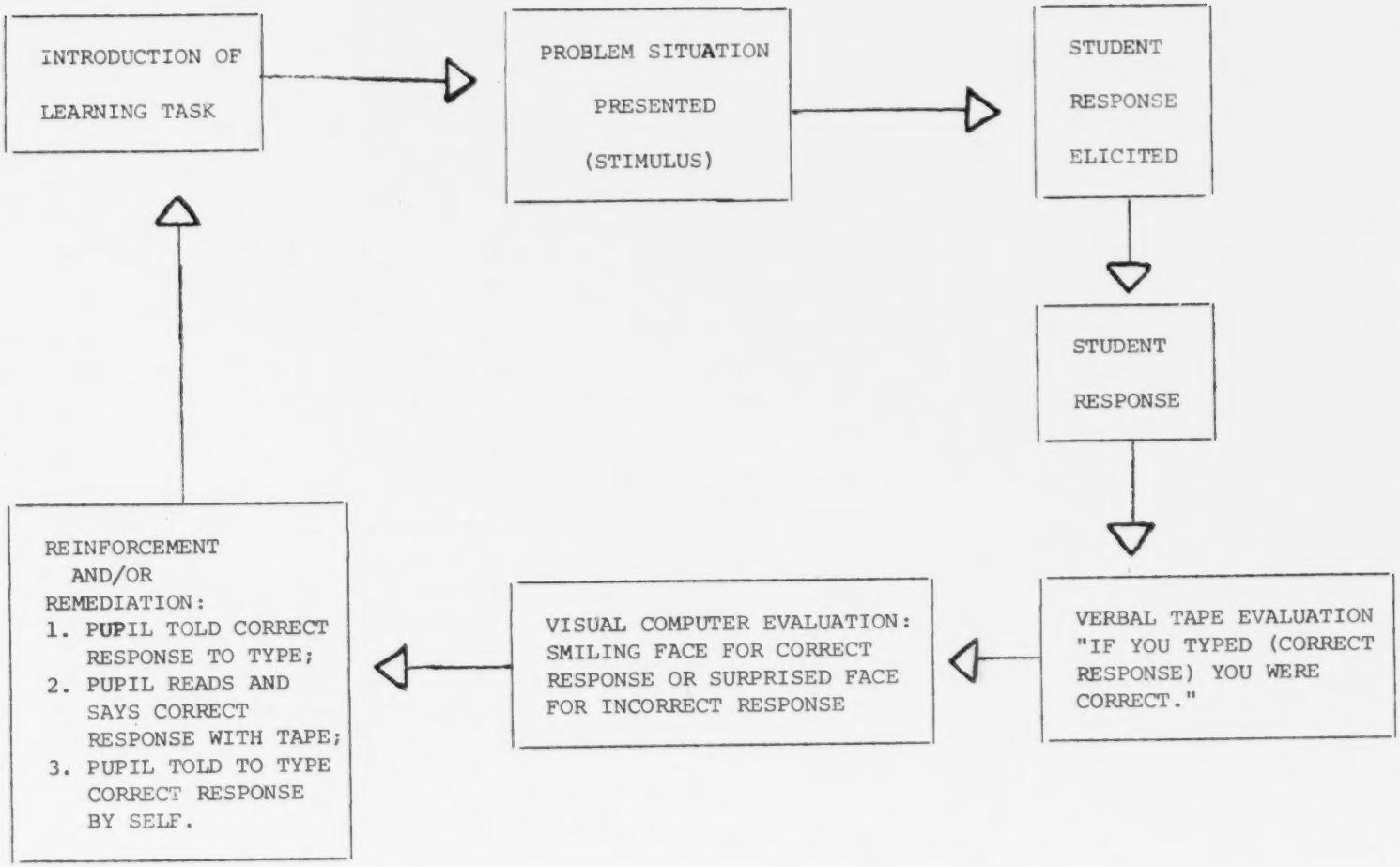
INTRODUCTION OF LEARNING TASK
PROBLEM SITUATION PRESENTED (STIMULUS)
STUDENT RESPONSE ELICITED
STUDENT RESPONSE
VERBAL TAPE EVALUATION "IF YOU TYPED (CORRECT RESPONSE) YOU WERE CORRECT."
VISUAL COMPUTER EVALUATION: SMILING FACE FOR CORRECT RESPONSE OR SURPRISED FACE FOR INCORRECT RESPONSE
REINFORCEMENT AND/OR REMEDIATION:
1. PUPIL TOLD CORRECT RESPONSE TO TYPE;
2. PUPIL READS AND SAYS CORRECT RESPONSE WITH TAPE;
3. PUPIL TOLD TO TYPE CORRECT RESPONSE BY SELF.

Fig. 2. Generalized instructional strategy used in creating development and criterion-test tapes in SABRE.

TABLE 1

NUMBER OF TAPES COMPLETED AND REMAINING TO BE COMPLETED IN THE RESPECTIVE AREAS AND TOTAL FOR SABRE

SABRE Area	Tape Classification	Number of Tapes	
		Completed (6/72)	Remainder to be Completed 10/72
Decoding	Development	155	30
	Criterion Test	100	17
Comprehension	Development	132	49
Alphabet	(Off-line)		30
Total	--	387	126

As part of the formative evaluation of SABRE the students' responses to the audio-tape cassette/computer presentation were continually monitored by both the staff and the computer. Initial staff monitoring indicated however, that the method of synchronization of the tapes with the visual presentation by the computer was faulty, consequently invalidating the computer reports. This synchronization problem required the eventual revision and retaping of all audio tapes. A related problem involved the headsets used by the children for listening to the tapes. The problem arose out of the incompatibility of the jacks on the headset cords with the receptacles on the cassette players, requiring that adaptors be inserted on the jacks. The adaptors functioned poorly, resulting often in loss of the audio portion of the presentation. The purchase of needed additional headsets and cassette players that are compatible will alleviate this problem for the future.

Over the last month of operation of the SABRE center, it was the opinion of the staff that the equipment functioned reliably enough to make the computer reports useful, thereby providing some "hard" data on the functioning of the tapes. Of the 39 decoding-skills development units completed during this final month (some tapes were completed more than once by different students), 29 (75%) resulted in a "Pass" while 10 (25%) were recorded as a "Failure." In the comprehension development units, 17 (71%) were completed successfully while 7 (29%) resulted in the student not achieving the set criterion (number of correct responses). Further evidence of the reliability of the SABRE instructional program is the fact that in the 30 Read On criterion-test tapes accessed by the children during the last month of school, no failures resulted.

Status of Objective 4. Provision of a Wide Variety of "Off-Line" Instructional Alternatives

The SABRE center closely resembles the physical set-up of a Reading Skills Center with one important addition--a bank of eight cathode ray tube (CRT) terminals connected to the computer. Other equipment includes a listening center, jack boxes, cassette players and recorders, record players, filmstrip projectors, filmloop sound projectors, a Dukane projector, and wet and dry carrels. To complement the hardware, an extensive inventory of instructional software was assembled including the following in the area of decoding-skills instruction: "Listen and Say" (cassettes), "Look and Do," "Phonics We Use," "Spelling and Learning Games," "Glad Sounds" and "Happy Sounds," alphabet charts, letter cards, "Creative Learning Program," and "Riddle, Riddle, Rhyme Time." The SRA "Listening Skills Program" (Grades 1 and 2), the Barnell Loft series ("Using the Context, Locating the Answer," etc.), "Listen and Think" (cassettes and workbooks), and Skillpacers are among the comprehension-skills materials. For literature appreciation, a large variety of childrens' books, book and record combinations, filmstrips, and story-telling props such as puppets and a "flannel board" is available for student use.

It should be reemphasized at this point that an important function of the computer is prescribing specific activities for the students' off-line instruction and maintaining records of student success and failure in these activities. This instructional-management component of the SABRE system is designed to greatly facilitate individualization of instruction.

In order to coordinate the student's classroom and center instruction in beginning reading skills, a communication system was devised by the SABRE staff to provide the classroom teacher with a written daily report on each student's activities in the center. At the same time, the classroom teacher may provide feedback to the center staff concerning individual student needs, which can provide valuable information in planning the instructional program for each student.

Complementary Data

Since all of the children participating in the SABRE project during its first year were students in the Lower House of the Intensive Learning Center, the reading teacher there was interviewed concerning her perceptions of the effects that SABRE might have had. The teacher's comments have been grouped into four areas:

1. Effect on test-taking skills. While administering the Metropolitan-Primary test, the reading teacher observed that students who had attended the SABRE center were better able to read the test, using the word-attack skills they had learned, and did not become frustrated when they came upon unfamiliar words. SABRE students were

noticeably more confident about their ability to do well on the test, with the result that they did not look at other students' papers.

2. Report of student counselor. The reading teacher related that the counselor was impressed with the SABRE students' feelings toward the program. SABRE students eagerly described in detail the work they had finished and their current work at the center. The counselor reported that mutual support was evident among the SABRE students, stemming from the feeling of achievement that they had for one another.

3. Parent response. Several parents reported to the teacher that their children came home excited when they moved on to a new book, and that the variety of instructional aids in the center was a continued source of pleasure for their children. The program so impressed one parent that she wrote an article about SABRE for the Philadelphia Inquirer.

4. Effect on classroom behavior in the ILC. SABRE students were characterized as being extremely eager to move on in their reading lessons. The participants would get their reading materials first in the morning, beginning work without prompting or encouragement from the teacher. This eagerness was attributed not to a competitive spirit, but rather to the motivation that was generated out of success experienced by the children and awareness of their achievement in the development of their reading skills.

After exposure to stories told on records and by the center teacher during Literature Appreciation, many of the SABRE students apparently modeled their storytelling on these experiences. The result was unusually expressive reading with little of the sing-song usually found in that age child. The speaking vocabulary and spelling ability were considered better than average in program students. The final observation of the reading teacher concerned the independence acquired by the SABRE children. Not only did they pick up books and children's newspapers on their own, but they also tried to overcome difficulties themselves by referring to dictionaries and by using word-attack skills. However, this is not to say that SABRE children did not use the teacher as a resource; to the contrary, available adults often were approached without hesitance for assistance. This independence prompted one ILC teacher to remark, "I don't believe that these children are first graders."

Conclusions

The SABRE project successfully completed the initial year of its development, meeting all its program-development objectives.

Objective 1. The basic reading skills necessary to teach beginning readers to read were identified providing a framework for the reading program. Criterion-reference tests, a structured reading series, and structured reading tapes were selected for use in the program.

Objective 2. The computer-based record-keeping/report-generating system was developed by the staff of the Division of Instructional Systems, making available for both teacher and staff use complete files on the prcgress of every student, schedules and prescriptions, and curriculum reports on every aspect of the SABRE reading program.

Objective 3. A complete set of audio-tape cassettes with associated visual presentations by the computer was developed to provide reading instruction to children in incremental learning steps, thereby providing activities specifically tailored to individual students' needs in beginning reading. Preliminary data indicate that the tapes are effective learning devices, resulting in successful experiences for beginning readers.

Objective 4. A wide variety of instructional materials was assembled in the center to be used by the students in off-line remedial and enrichment activities and in developing literature appreciation. Reports by teachers indicate that SABRE is having the intended impact on the motivation of the participating students.

However, due to certain difficulties (e.g., synchronization of audio tape and cathode display) several modifications were made. It appears that the SABRE program will be fully operational in the 1972-1973 school year. If the implementation proceeds as scheduled, qualitative and quantitative measures of pupil progress will be utilized.

Although the initial positive responses of the teacher, pupils, and parents were expected (i.e., possible Hawthorne effect), a longitudinal assessment of attitudes will be continued in the 1972-1973 school year.

WALNUT CENTER
(PBRS #211-01-517)

Walnut Center (WC) is a racially and socioeconomically integrated early childhood center which serves 169 children in a public school program and 43 children in a day care program.

Recent educational studies have reported positive cognitive and affective learning results from socioeconomic and ethnic integration (Coleman, 1966; Henderson, 1969; Pettigrew, 1968; St. John, 1969, 1970; Sacramento Board of Education, 1971). The benefits of an integrated education are maximized when the process is begun early in a child's school career.

WC has, since its inception in 1967, provided a prekindergarten through first-grade program for children from a variety of ethnic and socioeconomic backgrounds. The Center also provides an early morning, lunch-time, and after-school child care program for up to 25 school-age children who attend other neighborhood schools. Program goals emphasize learning in both the cognitive and affective domains. Project objectives include the following:

1. To improve general intellectual functioning;

2. To improve academic functioning, particularly in language and arithmetic skills;

3. To foster interaction among pupils from different backgrounds;

4. To foster positive attitudes toward school;

5. To stimulate parent and community involvement in the Center's program; and

6. To ease problems of transition from kindergarten to first grade, and from WC to other schools.

Originally located on the campus of the University of Pennsylvania, WC is now completing its second year in a new facility at 38th Street and Lancaster Avenue, in an integrated area between the university district and a predominantly lower socioeconomic (SES) black neighborhood. Enrollment at the Center is voluntary. Applicants are screened by social workers to insure a reasonable ethnic and SES balance in the pupil population. Although faced with competition from other nearby preschool programs, a small number of lower-SES white families and middle- to upper-SES black families in the neighborhood, no busing facilities, and restricted boundaries for drawing pupils, WC has striven to maintain as equitable a population

balance as possible. The pupil population of the Center, as of April 28, 1972, is displayed in Table 1.

TABLE 1

WC ENROLLMENT BY ETHNIC AND SES GROUPS[1]

SES Group[2]	Ethnic Group			Total
	Black	White	Other	
Higher	28	49	24	101
Lower	93	11	7	111
Total	121	60	31	212

[1]Enrollment on April 28, 1972, consisted of 169 children in the public school program and 43 in the day care program.

[2]Classification was done by the WC social workers. In this evaluation, upper- and middle-SES groups were combined into a single "higher-SES" group.

A combination of structured and unstructured classroom management techniques is used at WC. Individual and small-group activities are interspersed with classwide lectures or question and answer sessions throughout the day. As the school year progresses, increasing emphasis is placed on small-group work. This is particularly the case in the two first-grade classes. The presence of teacher aides, student teachers, and parent volunteers serves to expedite this process, for it allows adults in the classroom to supervise and consult with work groups on a regular basis. Pupils are thereby provided with the opportunity, not only to work independently, but to engage in a variety of relationships with their peers.

Previous evaluations have indicated that WC's goals have consistently been achieved in both cognitive and noncognitive spheres. In 1968-1969, WC pupils were found to be on a par with, or ahead of, nonparticipant peers in development of cognitive skills as measured by the Preschool Inventory, the Associative Vocabulary Test and the Numerical Concept Formation Test. In 1969-1970, WC was found to have involved many segments of the community in its program, particularly parents, who have all along played a major role in the project. Although a certain amount of intergroup bias continued to exist among Center pupils, a high degree

of interaction was observed among pupils from different backgrounds. A follow-up of children who had attended WC showed that they had, in most cases, made a better-than-average adjustment to second-grade classes in their new schools. In 1970-1971, it was found that WC pupils in both kindergarten and first grade attained above-average reading and arithmetic scores on the Philadelphia Readiness Test (PRT) and Continuous Progress Primary (CPP) criterion measures. Although, in almost all cases, upper-SES pupils outperformed their lower-SES peers at WC, the lower-SES groups tended to obtain academic ratings higher than those for the city as a whole. Attitudes of WC pupils toward school were found to be quite positive, regardless of SES background.

Current Evaluation Procedure

In this year's evaluation, classroom activities and pupil performance in WC first-grade classes have been monitored on a continuing basis. The groundwork for a longitudinal study of WC "graduates" (WCG's) has also been established. Twenty (approximately 40%) of WC's first-grade class of 1970-1971 were enrolled in the second grade at nearby Powel School. The academic performance of these youngsters, both in overall terms and in relation to that of their classmates, has been followed throughout the year.

This year's evaluation has sought to answer the following questions related to the project's objectives:

1. How well do WC first-grade pupils perform in reading and arithmetic?

2. How does the performance of lower-SES first-grade pupils at WC compare with that of higher-SES first-grade pupils at WC in reading and arithmetic?

3. How does the performance of WCG's in Powel's second grade compare with that of their Powel classmates in reading and arithmetic?

Question 1. How well do WC first-grade pupils perform in reading and arithmetic?

Criterion: At least 85% of WC first-grade pupils will attain at or above Level 3, in both reading and arithmetic, on Continuous Progress Primary ratings, by April.

Continuous Progress Primary (CPP) achievement levels in reading and arithmetic, for all WC first-grade pupils, were reported by their teachers in November 1971 and April 1972. In November, over 93% of the pupils attained Level 2 in reading; over 95% attained Level 1 in arithmetic

(See Table 2). In light of this achievement, as well as last year's performance (over 90% of 1970-1971 WC first-grade pupils achieved at or above CPP Level 3 in both reading and arithmetic by April), the performance criterion was upgraded this year from Level 2 to Level 3, for both reading and arithmetic, by April 1972. Performance criteria for all CPP levels may be obtained from the Office of Research and Evaluation.

Results were summarized in tabular form.

Question 2. How does the performance of lower-SES first-grade pupils at WC compare with that of higher-SES first-grade pupils at WC in reading and arithmetic?

The design, instrumentation, and subjects were the same as for Question 1. A Fisher Exact Probability Test was used to compare reading levels; a chi-square was used to compare arithmetic levels.

Results were summarized in tabular form.

Question 3. How does the performance of WCG's in Powel's second grade compare with that of their Powel classmates in reading and arithmetic?

The Metropolitan Achievement Test (MAT) was administered to all second-grade pupils at Powel in May 1972. Reading and arithmetic scores of the 20 WCG's in Powel's second grade were compared with those of their 38 classmates. A Mann-Whitney U test was used for a statistical comparison of percentile ranks.

Results were summarized in tabular form.

Results

Data relevant to Question 1. How well do WC first-grade pupils perform in reading and arithmetic?

Table 2 shows the numbers and percentages of WC first-grade pupils performing at each CPP level in reading and arithmetic, in November 1971 and April 1972. The criterion of 85% performing at or above Level 3 by April was achieved in both learning areas. In fact, 85% achieved at or above Level 4 in reading, while over 90% performed at or above Level 3 in arithmetic.

TABLE 2

SUMMARY OF STUDENT ACHIEVEMENT IN READING AND ARITHMETIC EXPRESSED IN NUMBER OF PUPILS ATTAINING SPECIFIED CPP LEVELS IN NOVEMBER 1971 AND APRIL 1972.

CPP Level	Reading						Arithmetic					
	November 1971			April 1972			November 1971			April 1972		
	Lower SES	Higher SES	Total	Lower SES	Higher SES	Total	Lower SES	Higher SES	Total	Lower SES	Higher SES	Total
0	2 (6.9%)		2 (4.3%)	2 (6.9%)		2 (4.3%)	2 (6.9%)		2 (4.3%)	2 (6.9%)		2 (4.3%)
1	1 (3.5%)		1 (2.1%)				27 (93.1%)	18 (100.0%)	45 (95.7%)			
2	26 (89.6%)	17 (94.4%)	43 (91.5%)							2 (6.9%)		2 (4.3%)
3				5 (17.2%)		5 (10.6%)				22 (75.9%)	7 (38.9%)	29 (61.6%)
4		1 (5.6%)	1 (2.1%)	22 (75.9%)	17 (94.4%)	39 (83.0%)				3 (10.3%)	11 (61.1%)	14 (29.8%)
5												
6					1 (5.6%)	1 (2.1)						
Total	29 (100.0%)	18 (100.0%)	47 (100.0%)	29 (100.0%)	18 (100.0%)	47 (100.0%)	29 (100.0%)	18 (100.0%)	47 (100.0%)	29 (100.0%)	18 (100.0%)	47 (100.0%)

Data relevant to Question 2. How does the performance of lower-SES first-grade pupils at WC compare with that of higher-SES first-grade pupils at WC in reading and arithmetic?

Table 2 illustrates the numbers and percentages of WC first-grade pupils of both SES groups at each CPP level in reading and arithmetic in November 1971 and April 1972. With the exception of two lower-SES pupils, both of whom were diagnosed by a school psychologist to have special learning problems, the two SES groups began first grade on equivalent levels of reading and math achievement.

The majority of pupils in both SES groups attained Level 4 in reading by April. However, a higher percentage of higher-SES pupils (100%) than of lower-SES pupils (76%) attained level 4 or above. A statistical comparison, using a Fisher Exact Probability Test, was conducted to determine whether the observed difference between proportions of children in the two SES groups at Levels 3 and above in reading was statistically significant. The difference was not significant at the .05 level of probability.

The average (modal) arithmetic level for higher-SES pupils in April was Level 4. The modal level for lower-SES pupils was Level 3.

In both reading and arithmetic, higher-SES first-grade pupils at WC attained higher CPP ratings than did their lower-SES classmates. This difference was especially pronounced in arithmetic achievement.

Data relevant to Question 3. How does the performance of WCG's in Powel's second grade compare with that of their Powel classmates in reading and arithmetic?

As is shown in Table 3, a difference of more than nine points was observed between the national percentile scores in reading of WCG's and non-WCG's in Powel's second grades. An eight-point difference was observed in math percentile scores. Mann-Whitney U Tests, performed to determine whether these differences exceeded chance probabilities, indicated that both differences were significant at the .05 level of probability in favor of the WCG's. These findings must be interpreted cautiously, however, since a far greater proportion of the WCG group than of the non-WCG group (42%) was classified as higher-SES (65%). SES classifications for WCG's were made by social workers while they were pupils at WC. SES classifcations for other Powel pupils were made by their teachers at Powel. Since different criteria were used in these classifications, the SES variable could not be controlled in any statistical comparison. It is possible that the higher scores of the WCG's were related to the greater percentage of these children from higher-SES backgrounds. Consequently, it appears that the total achievement of the WCG's was influenced by both their home experiences and their participation in the WC program.

TABLE 3

MEDIAN PERCENTILE RANKS OF WCG'S AND NON-WCG'S IN POWEL'S SECOND-GRADE CLASSES ON THE TOTAL READING AND TOTAL MATH COMPONENTS OF THE MAT

Subject Area	Basis of Comparison	Median Percentile Rank		Difference
		WCG's N=20	Non-WCG's N=38	
Total Reading	National	35.7	26.3	9.4
	Local	54.7	45.3	
Total Math	National	34.7	26.6	8.1
	Local	53.7	45.6	

Complementary Data

Twenty-eight monitoring visits were made by ORE staff to the WC project between October 1971 and May 1972.

Ten parent or community volunteers were observed to be actively involved in WC classrooms; three were observed at Powel. On all but four occasions--three at WC, one at Powel--at least one adult, in addition to the teacher, was observed on each visit. Additional adults, other than parents and community volunteers, included teacher aides and assistants, college interns and volunteers, and student teachers.

Differences were observed in both the teaching styles and relative emphasis on subject matter in each of the five classrooms monitored. Both WC first-grade classes, as well as the "formal" second-grade class at Powel, appeared to devote a greater proportion of time to basic academic skills (language arts and arithmetic) than did the two "informal" classes at Powel. The informal classes were observed to engage in more parallel activities related to basic skills (e.g., arts and crafts using ideas from social studies and math lessons). Individualized instruction was observed to take place a greater proportion of the time in the informal classes than in the other classes observed. Large-group instruction took place in the formal second grade and one WC first grade a greater proportion of the time than in the other three classes. The seating arrangement was most flexible in the informal Powel classes, and least flexible in the formal Powel class. Subgrouping for specific tasks was most noticeable in both WC first-grade classes. In all cases, teachers displayed a concern for individual pupils as well as larger groups, including the entire class.

Districtwide test scores were obtained for WC first-grade and kindergarten classes. Table 4 shows that first-grade classes at WC scored well above both national and local averages on the Metropolitan Achievement Tests. The average national percentile rank, by definition, is 50. WC pupils attained average national percentile rankings of 85 in total reading and 75 in total math.

TABLE 4

NATIONAL AND LOCAL PERCENTILE RANKS OF WC FIRST-GRADE CLASSES ON THE METROPOLITAN ACHIEVEMENT TESTS

Class	Total Reading		Total Math	
	National	Local	National	Local
A (N=23)	88	90	84	88
B (N=23)	82	88	66	74
Total (N=46)	85	89	75	81

Table 5 indicates that WC kindergarten pupils scored highly on the Stanford Early School Achievement Test. Their average national percentile rank was 78.5.

As in previous evaluations, although pupils were observed interacting positively with peers of a different race on over 80% of visits, a preference was noticed for both WC and Powel pupils to socialize with fellow-pupils of their own race.

Average daily attendance for WC public school pupils, between October 1971 and May 1972, was 89%. That for the public elementary pupils in all of District One, for the same period, was also 89%.

TABLE 5

MEAN NATIONAL AND LOCAL PERCENTILE RANKS OF WC KINDERGARTEN CLASSES ON THE STANFORD EARLY SCHOOL ACHIEVEMENT TEST

Class	National	Local
Child Care (N=14)	62	65
AM (N=23)	82	83
PM (N=20)	86	87
Total (N=57)	78.5	80

Conclusions

Question 1. How well do WC first-grade pupils perform in reading and arithmetic?

WC first-grade pupils performed on a high academic level during the 1971-1972 school year.

By April, all but two of the WC first-grade pupils had attained the criterion Level 3 or better on Continuous Progress Primary ratings in reading. The percentage of pupils attaining Level 3 or above (95.7%) was well above the expected 85%. The large majority of pupils (85.1%) attained Level 4 or above. It may be concluded that WC first-grade pupils performed well in reading. This conclusion is supported by their scores on the Metropolitan Achievement Tests (MAT). The WC first graders' average local percentile rank on the MAT was 89 (the highest percentile rank possible is 99).

All but four of the WC first graders had attained the criterion Level 3 or better on CPP arithmetic ratings by April. The percentage of pupils attaining Level 3 or above (91.7%) was, again, well above the expected 85%. Close to 30% attained Level 4. That WC first-grade pupils performed well in arithmetic is supported by their "Total Math" scores on the MAT. The average local percentile rank for WC first-grade pupils was 81.

Question 2. How does the performance of lower-SES first-grade pupils at WC compare with that of higher-SES first-grade pupils at WC in reading and arithmetic?

Higher-SES pupils perform better in the WC program than lower-SES pupils.

Both SES groups are performing at or above the criterion CPP Level 3 in both reading and arithmetic. The tendency, however, has been for higher-SES pupils to achieve higher levels than lower-SES pupils, in both areas. The difference in arithmetic achievement between the two groups was statistically significant ($p<.001$).

Question 3. How does the performance of WCG's in Powel's second grade compare with that of their classmates in reading and arithmetic?

WCG's attained higher MAT scores in reading and math. Differences in both areas were found to be statistically significant ($p<.05$). However, it cannot be stated conclusively that the higher achievement of WCG's was a result of their participation in the WC program, because of the greater percentage of higher-SES pupils in the WCG group than in the non-WCG group.

Evaluator's Comment

The data suggest that the WC program has succeeded in preparing its pupils academically. Many WC first graders were reading on, or near, a second-grade level by April. A follow-up study of former WC pupils in second grade found them performing as well as, if not better than, their classmates. Although higher-SES WC pupils consistently performed on levels above those of their lower-SES classmates, the tendency for both groups was to achieve on levels above those expected of children in the same age or grade group.

A continuation of the past year's longitudinal study, as well as regular monitoring at WC, is suggested for future evaluations.

YOUTH SERVING YOUTH
(PBRS #211-02-782)

Youth Serving Youth (YSY) is a tutorial project in which target-area teenage students tutor target-area elementary school children.

The objective of the YSY project is to provide tutorial services to elementary pupils in order to improve performance in basic skills. In addition, it is anticipated that the junior high school tutors also will benefit in terms of improved performance in school subjects.

Current Evaluation Procedure

A descriptive evaluation was used during the 1971-1972 school year. Information obtained from the project's Summary Report was noted and summarized in terms of frequency.

Results

Data obtained from the YSY Summary Report are summarized in Table 1.

TABLE 1

PARTICIPATION AND IMPROVEMENT FROM DECEMBER UNTIL MAY
AT EIGHT YSY CENTERS

Group	Number Participating	Number Improving	
		English	Citizenship
Tutors	90	41	45
		Reading	Work Habits
Tutees	250	122	107

Conclusions

Approximately half (48%) of the tutees and tutors showed improvement in subject matter and work habits (citizenship). Although these rates are about the same as last year, the project director reported that more children were served. In addition, a screening selection for tutors was employed which focused upon good grades, attendance, and citizenship. In this way, a more stable and mature tutoring force was obtained.

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